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Studies on the genus *Chrysodema* (Coleoptera: Buprestidae: Chrysochroinae) part I.

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Abstract

Subgeneric classification of *Chrysodema* Laporte de Castelnau & Gory, 1835 is revised and following synonymy is established: *Chrysodema*=*Cyalithoides* Fisher, 1922 **syn. nov.**; *Pseudochrysodema* Saunders, 1874=*Leganya* Holyński, 1994 **syn. nov.**,=*Marsikiella* Holyński, 2014 **syn. nov.** Four subgenera are recognized as valid: *Chrysodema* s. str., *Gelaeus* Waterhouse, 1905, *Pseudochrysodema* Saunders, 1874, and *Thymedes* Waterhouse, 1905, and a key to the subgenera is given. Four species-groups are established in the subgenus *Chrysodema* s. str.: *C. aeneoviolacea*-group, *C. aurostriata*-group, *C. eximia*-group, and *C. sonnerati*-group. All known species, except the currently accepted synonyms of *Chrysodema* (*Chrysodema*) *eximia* Laporte de Castelnau & Gory, 1835, included in these groups are revised based on comparative study of extensive material including types of all described taxa. Three new species and one subspecies are described: *Chrysodema* (*Chrysodema*) *dany* **sp. nov.** from Haruku Island, Indonesia; *C. (C.) gottwaldi* **sp. nov.** from Palawan Island, Philippines; *C. (C.) lewisii nakatai* **subsp. nov.** from Yaeyama Islands, Japan; and *C. (C.) vrabeci* **sp. nov.** from Thailand and Laos. *Chrysodema* (*C. aeneoviolacea*) Deyrolle, 1864 **stat. rev.**, *C. (C.) dohrnii* Saunders, 1874 **stat. rev.**, and *C. (C.) fuscitarsis* Kerremans, 1895 **stat. rev.** are removed from synonymy with *C. (C.) mniszeczhii* Deyrolle, 1864; *C. (C.) tonkinea* Kerremans, 1909 **stat. rev.** is removed from synonymy with *C. (C.) aurostriata* Saunders, 1866. Three new synonymies are established: *C. (C.) aeneoviolacea*=*C. (C.) elongata* Kerremans, 1900 **syn. nov.**=*C. (C.) keyensis* Théry, 1923 **syn. nov.** (the latter was formerly synonym of *C. (C.) elongata*); *C. (C.) dohrnii*=*C. (C.) fairmairei* Kerremans, 1895 **syn. nov.** (formerly synonym of *C. (C.) mniszeczhii*). Neotype is designated for *C. (C.) sonnerati* Laporte de Castelnau & Gory, 1835 and lectotypes are designated for following taxa to ensure their correct application and recognition in future: *C. (C.) aurostriata*, *C. (C.) fairmairei*, *C. (C.) fuscitarsis*, *C. (C.) sumatrensis* Kerremans, 1895, *C. (C.) tonkinea*, *C. (C.) yerburyi* Waterhouse, 1905, *C. (P.) coelestina* Obenberger, 1922, and *C. (P.) instabilis* Deyrolle, 1864. Additionally, dark species of the subgenus *Pseudochrysodema* are revised and as a result *C. (P.) coelestina* **stat. rev.** and *C. (P.) instabilis* **stat. rev.** are removed from synonymy with *C. (P.) radians* (Guérin-Méneville, 1830) and a new species *C. (Pseudochrysodema) jakli* **sp. nov.** is described from Timor Island, Indonesia. All herein included taxa are illustrated with colour photographs of habitus and the male aedeagus when available. All new taxa are diagnosed and a key to species of the *C. aeneoviolacea*-group is given.

Key words: taxonomy, new species, new subspecies, new assignment, new status, restored status, neotype designation, lectotype designation, Southeast Asia, Japan, Oriental Region, Palearctic Region

Introduction

History of the genus *Chrysodema*. Laporte de Castelnau & Gory (1835) established the genus *Chrysodema* for thirty-three taxa; 16 described as new and 17 transferred from other genera. Only thirteen of them remain in the genus *Chrysodema* today, the others were subsequently transferred to other genera, i.e. *Aglaostola* Saunders, 1871; *Iridotaenia* Deyrolle, 1864; *Evides* Dejean, 1833; *Lamprocheila* Saunders, 1871 and *Paracupta* Deyrolle, 1864. Some authors synonymized *Chrysodema* with *Chalcophora* Dejean, 1833 (Lacordaire 1857; Gemminger & Harold 1869), however most authors did not accepted the synonymy and considered *Chrysodema* as a valid genus.

Kerremans (1909) downgraded the genera *Gelaeus* Waterhouse, 1905, *Pseudochrysodema* Saunders, 1874 and *Thymedes* Waterhouse, 1905 to subgenera of *Chrysodema*. Obenberger (1926) accepted the classification but considered *Gelaeus* as a valid genus. Kurosawa (1982) synonymized *Gelaeus* and *Pseudochrysodema* with *Chrysodema*, he did not mention *Thymedes*. Bellamy (1985) again restored *Gelaeus* as valid genus and *Pseudochrysodema* as a subgenus of *Chrysodema*. He listed *Thymedes* also as a valid genus. Holyński (1994) fully accepted the classification of Kerremans, downgraded *Tamamushia* Miwa & Chûjô, 1935 to a subgenus of *Chrysodema* and proposed new subgenera *Mitshekia* Holyński, 1994 and *Leganya* Holyński, 1994. Holyński erroneously considered *C. radians* (Guérin-Méneville, 1830) as the type species of *Chrysodema* s. str. The nominotypical subgenus in his sense was separated in having deep principal impressions on the pronotum while the new subgenus *Mitshekia* has small principal impressions, and he designated *C. smaragdula* (Oliver, 1790) as its type species. However, the type species of *Chrysodema* s. str. is *C. sonnerati* Laporte de Castelnau & Gory, 1835, as subsequently fixed by the commission, which has small principal impressions on pronotum. Bellamy (2003) changed the type species for *Chrysodema* and accepted the new subgenera *Leganya* and *Mitshekia* (including subgenus *Pseudochrysodema*) but he listed *Gelaeus*, *Tamamushia* and *Thymedes* as valid genera. Akiyama & Ohmomo (2000) and Volkovitsh (2001) also listed *Gelaeus*, *Tamamushia* and *Thymedes* as valid genera and they did not mention any subgenera. Lander (2003) listed *Gelaeus* and *Pseudochrysodema* as subgenera of *Chrysodema* and *Tamamushia* and *Thymedes* as valid genera. Kubáň (2006: 46) noticed the discrepancy in Holyński (1994) and synonymized *Mitshekia* with *Chrysodema* s. str. Bellamy

(2008) accepted the classification of Hołyński with change proposed by Kubáň (2006). Bellamy & Lander (2008) synonymized *Cyalithoides fulgida* Fisher, 1922 with *Chrysodema robusta* Deyrolle, 1864. Hołyński (2014) again downgraded *Tamamushia* to a subgenus of *Chrysodema*, restricted *Chrysodema* s. str. to *C. sonnerati* and *C. lewisii* Saunders, 1873 and thus considered *Mitshekia* as a valid subgenus, and proposed a new name (nom. nov.) *Marcuskiella* Hołyński, 2014 for *Chrysodema* sensu Hołyński (1994) (type species: *C. radians*). The name *Marcuskiella* is invalid because it does not meet requirements of the Article 13.1.3 (ICZN 1999) as *Chrysodema* sensu Hołyński is not an available name.

Marcuskiella and *Leganya* are in our opinion the same as *Pseudochrysodema*. Saunders (1874b) wrote in his description of *Pseudochrysodema* that ‘This genus is difficult to characterize... It has quite the general appearance of *Chrysodema*...’ and separated the genus from *Chrysodema* by ‘flavous tarsi’ and ‘strongly angulated shoulders’. However, other subgenera of *Chrysodema* (i.e. *Chrysodema* s. str. and *Gelaesus*) also contain species with yellow tarsi. The subhumeral denticle is also variable and some species (e.g. *C. lottinii* (Boisduval, 1835), *C. aurofoveata* (Guérin-Méneville, 1830)) have very distinct subhumeral denticle too. We compared type specimens of *C. badeni* (Saunders, 1874) and *C. lottinii*, type species of *Pseudochrysodema* and *Leganya* respectively, and in general they have similar structure of the principal impressions of pronotum and also the costae on elytra and thus the subgenera cannot be distinguished by these characters. Hołyński (1994, 2014) separated the subgenera *Leganya* and *Marcuskiella* by formation of elytral costae. *Leganya* with costae 2–5 uniting in ca. apical third and *Marcuskiella* with costa 5 always separated, remaining ones separated or joined to 3 in apical fourth. We have examined numerous specimens of various species of *Chrysodema* with large principal impressions on pronotum and in our opinion the formation of elytral costae is very variable and characters proposed by Hołyński can be applied only to a small portion of examined specimens. For instance we have specimen of *C. lottinii*, type species of monotypic *Leganya*, which does not have costa 5 united with others. In most species available to us in larger amounts (20 and more specimens) the costae always show variability. For instance *C. dalmanni* (Mannerheim, 1837), *C. laevipennis* (Guérin-Méneville, 1830), *C. radians* (typical form from New Guinea) and *C. simplex* Waterhouse, 1887 have costa 5 united with others. On the other hand *C. coelestina* Obenberger, 1922 has completely reduced costae on elytra. As demonstrated above, the characters delimiting the subgenera are a mosaic and also show considerable variability within a single taxon, therefore we hereby synonymize *Marcuskiella* and *Leganya* with *Pseudochrysodema*.

Kubáň (2016) reinstated *Tamamushia* as a genus, synonymised the subgenus *Mitshekia* with *Cyalithoides* Fischer, 1922, earlier synonymized with *Chrysodema*. Hołyński (1994, 2014) separated *Mitshekia* and *Chrysodema* s. str. based on presence/absence of densely punctate impressions on elytra. This is a continuous character with variable development within a single species or natural group of taxa, e.g. *C. tonkinea* Kerremans, 1909, *C. fucata* Deyrolle, 1864, or *C. smaragdula* aggregate. Therefore we hereby synonymize *Cyalithoides* with *Chrysodema* s. str.

In a summary, we presently recognize four valid subgenera of *Chrysodema*: *Chrysodema* s. str., *Pseudochrysodema*, *Gelaesus*, and *Thymedes*. Subgenus *Thymedes* was revised by Hołyński (1994) and *Gelaesus* by Frank & Sekerka (2016).

Type species of *Chrysodema*. Duponchel (1843: 653) designated *C. sumptuosa* Laporte de Castelnau & Gory, 1835 as the type species. Deyrolle (1864) transferred this species to *Iridotaenia* Deyrolle, 1864 without any comment and Kurosawa (1982) designated it as the type species of *Iridotaenia*. In the same paper Kurosawa also designated *C. sonnerati* as the type species of *Chrysodema* not knowing about Duponchel’s (1843) designation. Hołyński (1994) erroneously considered *C. radians* as type species of *Chrysodema* not knowing about previous designations. Bellamy (2002a) noticed that *C. sumptuosa* was valid type species for both, *Iridotaenia* and *Chrysodema*, thus both being objective synonyms at that time. Therefore he proposed an application to ICZN for conservation of both names by designating *C. sonnerati* as the type species of *Chrysodema*. Subsequently ICZN (2004) conserved the usage of both genera by designating *C. sonnerati* as the type species of *Chrysodema*.

However designation of *C. sonnerati* as the type species of *Chrysodema* is a bit unfortunate as there are several discrepancies and the original holotype has not been found. Bellamy (2002a) presented a photograph of a specimen and claimed it was the type, but that appears to be incorrect (see further remarks under *C. sonnerati*). We have repeatedly tried to trace the original type specimen but without success and therefore we assume that the original holotype is lost. Accordingly we decided to designate a neotype of *C. sonnerati* from the lectotype of *C. yerburyi* Waterhouse, 1905 (which was synonymized with *C. sonnerati* by Lander (2003: 66)) not only to fix the identity of the taxon but also to conserve the present concept of the genus *Chrysodema* which has been use for past 100 years; see more information under *C. sonnerati*.

Material and methods

The revision is based on the study of type material and additional specimens available to us. Specimens were compared using methods of standard comparative morphology.

The terminology follows our previous paper (Frank & Sekerka 2016) with necessary modifications. The pronotum of *Chrysodema* has usually three (most of taxa except of the subgenus *Thymedes*, which has nearly no impressions) or four pairs (species of *Gelaeus*) of major impressions (see Figs 96–103) and we recognize them as: a) the principal impression is the largest oval to elongate impression on the pronotum situated approximately in the middle of each lateral side; b) the medial impression situated laterally to the medial line on both sides; c) the lateral impression situated along mid-length of the lateral pronotal carina; and d) the basal impressions situated approximately at 1/7 width of the pronotum from each side, at base (present only in *Gelaeus*).

Punctuation of elytra in most species of herein discussed *Chrysodema* is not regular except at the base of elytra and only even intervals (2, 4, 6 and 8) are developed. In species with nearly flat elytra we use the word interval to indicate the impunctate or sparsely punctate and shiny area between densely punctate ones; if the interval is elevated then we use the term costa(e). Odd intervals are covered with secondary punctuation for most of the elytra. In species with costate elytra these odd ‘intervals’ form together with rows of punctures four shallow to deep intercostal depressions. Costae are sometimes interrupted by additional impressions; the most frequent one, here referred to as the principal impression, is situated on discal part of elytra at approximately 1/3 length from base (see Figs 13, 16, and 19). Other impressions on elytra are very variable, thus are described individually within each taxon.

The length of body was measured as a distance between anterior margin of the head and the apex of elytra. The width of body was measured at widest point across elytra. The length of aedeagus was measured as a distance between its base and the apex of parameres. The width of aedeagus was measured at its widest point. Values in brackets indicate unusual minimum or maximum values present in one or two specimens of a respective taxon.

The names of colours mentioned in descriptions and length in lines (English=2.12 mm, French=2.26 mm) are according to Wikipedia (en.wikipedia.org).

Exact label data are cited for all type specimens; a double slash (//) divides the data on different labels and a single slash (/) divides the data in different rows. Type localities are cited in the original spelling. Other comments and remarks are placed in square brackets: [p]—preceding data are printed, [h]—preceding data are handwritten, [w]—white label, [r]—red label, [b]—blue label, [y]—yellow label, [g]—green label.

Studied specimens are deposited in following collections:

- ATMR Andrey Yu. Titarenko, Moscow, Russia;
- BMNH Natural History Museum, London, United Kingdom (Maxwell V. L. Barclay, Michael Geiser);
- DFPC David Frank collection, Prague, Czech Republic;
- EJBS Eduard Jendek collection, Bratislava, Slovakia;
- FSHC Fang-Shuo Hu collection, Yilan County, Taiwan;
- IRSN Institut Royal des Sciences Naturelles, Brussels, Belgium (Alain Drumont);
- MFNB Museum für Naturkunde, Berlin, Germany (Johannes Frisch);
- MHNG Muséum d’Histoire Naturelle, Geneve, Switzerland (Giulio Cuccudoro);
- MNCN Museo Nacional de Ciencias Naturales, Madrid, Spain (Mercedes París);
- MNHN Muséum National d’Histoire Naturelle, Paris, France (Antoine Mantilleri);
- MOOC Martin Obořil collection, Olbramovice, Czech Republic;
- NCHU National Chung Hsing University, Taichung, Taiwan;
- NHMB Naturhistorisches Museum, Basel, Switzerland (Matthias Borer);
- NHMW Naturhistorisches Museum, Vienna, Austria (Harald Schillhammer);
- NMBE Naturhistorisches Museum, Bern, Switzerland (Hannes Baur);
- NMPC National Museum, Prague, Czech Republic (Lukáš Sekerka);
- SJPC Stanislav Jákł collection, Prague, Czech Republic;
- SGBG Stephan Gottwald collection, Berlin, Germany;
- SVVC Svatoslav Vrabec collection, Vrchlabí, Czech Republic;
- TARI Taiwan Agricultural Research Institute, Taichung City, Taiwan;

USNM United States National Museum, Washington D.C., USA;
VKSC Vítězslav Kubáň collection, Šlapanice u Brna, Czech Republic (will be deposited in NMPC);
WBWA Wolfgang Barries collection, Vienna, Austria.

Taxonomy

Chrysodema Laporte de Castelnau & Gory, 1835

Chrysodema Laporte de Castelnau & Gory, 1835: 1 (type species: *Chrysodema sonnerati* Laporte de Castelnau & Gory, 1835; fixed by subsequent designation (ICZN 2004: 128)).

Cyalithoides Fisher, 1922: 4 (type species: *Cyalithoides fulgida* Fisher, 1922 by monotypy), **syn. nov.**

Mitshekia Holyński, 1994: 71 (type species: *Buprestis smaragdula* Olivier, 1790 by original designation), **syn. nov.**

subgenus *Pseudochrysodema* Saunders, 1874b: 223 (type species: *Pseudochrysodema badeni* Saunders, 1874b by original designation).

Leganya Holyński, 1994: 71 (type species: *Buprestis lottini* Boisduval, 1835 by original designation), **syn. nov.**

Marsikiella Holyński, 2014: 374 (type species: *Buprestis radians* Bdv. [sic!]=*Buprestis radians* Guérin-Méneville, 1830), **syn. nov.**

subgenus *Gelaeus* Waterhouse, 1905: 584 (type species: *Pseudochrysodema walkeri* Waterhouse, 1892 by monotypy).

subgenus *Thymedes* Waterhouse, 1905: 584 (type species: *Chrysodema flavicornis* Saunders, 1874a by monotypy).

Key to subgenera of *Chrysodema*

- 1 Principal impressions (a) small to moderately large (Figs 96–97, 102–103), not reaching lateral margin of pronotum, sometimes only linear or nearly absent (Figs 100–101). 2
- Principal impressions (a) large and rounded, reaching to lateral margin of pronotum, which forms a sharp carina (e) (Figs 98–99). *Pseudochrysodema* Saunders, 1874
- 2 Basal impressions of pronotum absent (Figs 96, 100). 3
- Pronotum with subtriangular, deep and sharply cut basal impression (d) on each side situated approximately at 1/7 width of basal side (Fig. 102). *Gelaeus* Waterhouse, 1905
- 3 Pronotum without principal impressions or only weakly indicated, medial line absent to weakly indicated, medial impressions absent (Fig. 100); costae on elytra weak, often only indicated or not clearly visible. *Thymedes* Waterhouse, 1905
- Pronotum with distinct principal impressions (a) and usually with medial line as well as medial impressions (b), however, the latter can be very shallow or partly reduced (Figs 96–97); costae on elytra usually clearly visible. *Chrysodema* Laporte de Castelnau & Gory, 1835

Chrysodema s. str.

Chrysodema Laporte de Castelnau & Gory (1835): 1 (original description); Duponchel (1843): 653 (note, type species designation); Agassiz & Erichson (1846): 36 (catalogue); Imhoff (1856): 46 (noted); Lacordaire (1857): 21 (as synonym of *Chalcophora*); Deyrolle (1864): 12 (key to genera); Gemminger & Harold (1869): 1356 (catalogue, as synonym of *Chalcophora*); Saunders (1871): 13 (catalogue); Waterhouse (1892): 411 (noted); Kerremans (1892): 37 (catalogue); Kerremans (1893): 105 (key to genera); Kerremans (1903): 73 (catalogue); Heyne & Taschenberg (1908): 132–133 (selected taxa, noted); Kerremans (1909): 504 (key to subgenera), 513–583 (key of species, monograph); Jakobson (1913): 779 (key to genera), 780 (catalogue); Carter (1921): 304 (key to genera); Obenberger (1926): 129 (catalogue); Carter (1929): 300 (catalogue); Richter (1949): 17 (noted); Richter (1952): 190 (noted); Kurosawa (1982): 190 (invalid designation of type species); Bellamy (1985): 415 (catalogue); Bellamy (1986): 594 (catalogue); Holyński (1993): 13 (catalogue); Holyński (1994): 69 (key to subgenera, revision of the subgenus *Thymedes*); Nelson & Bellamy (1994): 300 (clarification of authorship and dates of publication); Bílý & Volkovitsh (1996): 326 (noted, classification); Holyński (1997): 186 (noted), 188 (catalogue); Akiyama & Ohmomo (2000): Pls 43–46, Figs 453–490 (iconography); Volkovitsh (2001): 55 (classification, phylogeny); Bellamy (2002a): 185 (proposal of *Chrysodema* conservation and type species designation); Bellamy (2002b): 185 (catalogue); Bellamy (2003): 35 (catalogue); Lander (2003): 9 (revision); Westcott (2003): 53 (comment on proposed conservation of *Chrysodema*); ICZN (2004): 128 (*Chrysodema* usage conserved); Kubáň (2006): 345 (catalogue); Bellamy (2008): 526 (catalogue); Bellamy & Lander (2008): 34 (synonymy of *Cyalithoides*); Holyński (2009): 285 (noted); Holyński (2014): 373 (key to subgenera); Kubáň (2016): 460 (catalogue); Frank & Sekerka (2016): 671 (revision of the subgenus *Gelaeus*).

Cyalithoides Fisher (1922): 4 (original description); Obenberger (1926): 135 (catalogue); Levey (1978): 155 (noted, genus ignotus); Holyński (1980): 274 (note); Bellamy (1985): 414 (catalogue); Bellamy (2003): 31 (catalogue); Bellamy (2006):

151 (masculine gender changed to feminine); Bellamy (2008): 479 (catalogue); Bellamy & Lander (2008): 34 (as synonym of *Chrysodema*); Holyński (2009): 40 (informal synonymy with *Chrysodema*).

Chrysodema (Cyalithoides): Kubáň (2016): 460 (catalogue).

Chrysodema (Mitshekia) Holyński (1994): 71 (original description); Bellamy (2003): 35 (catalogue); Lander (2003): 9 (noted); Kubáň (2006): 46 (as synonym of *Chrysodema (Chrysodema)*), 345 (catalogue, in synonymy); Bellamy (2008): 526 (catalogue, in synonymy of *Chrysodema (Chrysodema)*); Holyński (2014): 373 (key to subgenera); Kubáň (2016): 22 (as synonym of *Chrysodema (Cyalithoides)*), 460 (catalogue, in synonymy).

Species groups in *Chrysodema* s.str.

Species of *Chrysodema* s. str. can be divided to several species-groups based on external morphology. Each group has more or less unique combination of characters but these are mosaic and thus the groups cannot certainly be classified as subgenera. In the present paper we deal with taxa belonging to four species-groups, of which we give preliminary definitions. Each of these groups contains morphologically similar taxa and possibly these taxa also form natural groups. However, as we have not examined all taxa in *Chrysodema* str. we cannot exclude the possibility that some other species will be added to the herein established groups. Also numerous taxa were incorrectly synonymized or misinterpreted not agreeing with the primary type specimens, therefore we avoided establishing other species-groups before revision of the respective material. The herein established four species-groups are:

***Chrysodema sonnerati* species-group.** This group is characterized by nearly flat and not sharply delimited costae on elytra and elytra without transverse impressions, only occasionally with a small rounded impression in basal third. The group has vicariant distribution in Japan, Taiwan, and Sri Lanka and includes two species: *C. (C.) sonnerati* Laporte de Castelnau & Gory, 1835; *C. (C.) lewisii* Saunders, 1873; the latter having two subspecies: the nominotypical one and *C. (C.) lewisii nakatai* **subsp. nov.**

***Chrysodema aurostriata* species-group.** This group is characterized by nearly flat and not sharply delimited costae on elytra and each elytron with two transverse large but shallow impressions. The group is distributed in continental SE Asia and includes three species: *C. (C.) aurostriata* Saunders, 1866; *C. (C.) tonkinea* Kerremans, 1909; *C. (C.) vrabeci* **sp. nov.**

***Chrysodema aeneoviolacea* species-group.** This group is characterized by strongly convex, wide and rounded costae on elytra. The group is distributed primarily in central Moluccas with one species in the Philippines and includes six species: *C. (C.) aeneoviolacea* Deyrolle, 1864; *C. (C.) dany* **sp. nov.**; *C. (C.) excellens* Théry, 1923; *C. (C.) mniszeczii* Deyrolle, 1864; *C. (C.) sibuyanica* Fisher, 1924; *C. (C.) wallacei* Deyrolle, 1864.

***Chrysodema eximia* species-group.** This group is characterized by strongly convex narrow and sharp costae on elytra. The group seems to be restricted to the Phillipines and includes four species: *C. (C.) eximia* Laporte de Castelnau & Gory, 1835; *C. (C.) dohrnii* Saunders, 1874; *C. (C.) fuscitarsis* Kerremans, 1895; *C. (C.) gottwaldi* **sp. nov.** In the present work we do not deal with *C. eximia* itself because we did not revise the type specimens of its synonyms yet, and they quite likely belong to other species-groups based on material in collections. We have examined the type series of *C. eximia* and undoubtedly the species belongs to this group and we use its name because it is the oldest one available.

Chrysodema sonnerati species-group

Chrysodema (Chrysodema) sonnerati Laporte de Castelnau & Gory, 1835

(Figs 10–12, 73)

Chrysodema Sonnerati Laporte de Castelnau & Gory (1835): 3 (original description, incl. colour Fig. 2, Pl. 1); Kurosawa (1982): 190 (designation as the type species of *Chrysodema*); Nelson & Bellamy (1994): 300 (clarification of authorship and date); Bellamy (2002a): 185 (proposal type species fixation); Westcott (2003): 53 (comment on proposed type species designation); ICZN (2004): 128 (type species designation).

Chalcophora sonnerati: Lacordaire (1857): 23 (noted); Gemminger & Harold (1869): 1359 (catalogue).

Iridotaenia sonnerati: Saunders (1871): 15 (catalogue); Kerremans (1892): 42 (catalogue); Kerremans (1903): 73 (catalogue).

Chrysodema (Chrysodema) sonnerati: Kerremans (1909): 513 (key), 520 (redescription); Obenberger (1926): 134 (catalogue); Lander (2003): 14 (key), 66 (redescription), 83 (colour Fig. 135); Bellamy (2003): 35 (catalogue); Bellamy (2008): 541 (catalogue); Holyński (2014): 374 (clarification of assignment to *Chrysodema* s. str.).

Chrysodema yerburyi Waterhouse (1905): 583 (original description).

Chrysodema (Chrysodema) yerburyi: Kerremans (1909): 518 (key), 568 (redescription); Obenberger (1926): 135 (catalogue); Lander (2003): 66 (revision, as synonym of *C. (C.) sonnerati*); Bellamy (2008): 541 (catalogue, in synonymy of *C. (C.) sonnerati*), 543 (listed as synonym of *C. (C.) sonnerati*).

Type localities. *Chrysodema sonnerati*: original type locality: ‘Indes-Orientales. (Du cabinet de M. Serville.)’ change to Sri Lanka, Trincomalee by neotype designation; *C. yerburyi*: ‘Ceylon, Trincomali’ [Sri Lanka, Trincomalee].

Type material examined. *Chrysodema sonnerati*. NEOTYPE (present designation) and *C. yerburyi* LECTOTYPE (present designation): ♀ ‘Ceylon. / Yerbury. / 92-59. [w, p] // Trincomali / 31. 3. 92 [w, h] // Type / H. T. [r, p, circle] // Chrysodema / Yerburyi / (Type) Waterh. [w, h]’ (BMNH); PARALECTOTYPE: ♀ ‘Ceylon. / Yerbury. / 92-59. [w, p] // Trincomali / 31. 3. 92 [w, h]’ (BMNH). Both specimens were provided with an additional red printed label: ‘LECTOTYPE [or PARALECTOTYPE respectively] ♀ / *Chrysodema / yerburyi* / WATERHOUSE, 1905 / David Frank & / Lukáš Sekerka des. VIII. 2018 [date handwritten]’. The lectotype was provided with red printed label: ‘NEOTYPE ♀ / *Chrysodema / sonnerati* / LAPORTE & GORY, 1835 / David Frank & / Lukáš Sekerka des. VIII. 2018 [date handwritten]’. The paralectotype was provided with white printed label: ‘*Chrysodema (Chrysodema) / sonnerati* / LAPORTE DE CASTELNAU & GORY, 1835 / David Frank det. VIII. 2018 [date handwritten]’.

Additional material examined (3 ♂♂, 8 ♀♀). SRI LANKA: Ceylan, Schenckl, 1 ♂ (MNHN); Ceylon, Coll. Jul. Moser, 2 ♀♀ (MFNB); Ceylon, Koll. Dr. A. Frh. v. Hoschek, 1 ♀ (IRSN); Ceylon, Collect. Plason, 1 ♀ (NHMW); Sri Lanka, 2 ♀♀ (MHNG, DFPC); Nalanda, 2^{de}-trim[estre]. [18]89, I. Z. Kannegieter, 2 ♀♀ (MNHN, IRSN); Nalanda, v.1989, 1 ♂ (MHNG); Trincomale, 1997, 1 ♂ (MHNG).

Description of neotype. Well preserved ♀ specimen with all appendages intact, only left mid leg without ultimate tarsomere. Length 28.75 mm, width 10.25 mm, length/width ratio: 2.80.

Body generally metallic green. Dorsal side centrally with variegate purple tint, on pronotum and particularly on elytra changing towards sides to golden. Ventral side centrally with obscure dark violet tint and laterally with variegated purple-golden tint. Legs including tarsi metallic green, ventral pads brown. Labrum, maxillae and labium including palpi yellow. Scape and pedicel metallic, remaining antennomeres brownish-black.

Pronotum densely macropunctate, shiny parts moderately densely micropunctate and weakly shagreened. Central part with shiny areas. Macropunctuation laterally gradually coarser and denser. Medial line narrow, irregular, anteriorly not visible, sparsely micropunctate, not elevated. Medial impressions absent. Principal impressions shallow and weakly delimited from disc. Lateral impressions shallow, their punctuation similar to surrounding punctures. Lateral margin rounded, distinct only in basal 1/2.

Elytra regularly convex, in basal 2/3 smooth without impressions or costae, only base with slightly indicated short costa internally of humeral calli. Apical 1/3 with more or less elevated intervals 2, 4 and 8, first two united on apical 1/6 and continuing as single costa (interval 6). Area between intervals 6 and 8 shallowly but distinctly impressed, with condensed wax layer thus appears like elongate opaque yellow stripe. Sutural interval gradually elevated towards apex and with row of punctures along suture. Punctuation generally irregular, not forming rows. Internally (up to position of imaginary interval 6) formed by irregularly dispersed groups of 3–6 punctures. These groups gradually impressed from postscutellar area towards lateral sides and apex. Interspaces circa 2 × as wide as puncture diameter, moderately densely micropunctate. Externally (outside position of imaginary interval 6) punctures smaller and very densely arranged, not grouped. External and internal punctuation intermixed in vicinity of position of imaginary interval 6. Epipleura in basal 1/4 broad, smooth and very sparsely punctate, in narrowing with short acute tooth thus not continuous.

Fore and mid femora in central part strongly shiny, sparsely punctate; hind femora distinctly more densely punctate and semi-matt.

Ventral side of body (Fig. 11) overall coarsely and very densely punctate, only central parts of thoracic ventrites sparsely punctate. Lateral sides of all abdominal ventrites densely and coarsely punctate (Fig. 12).

Variation. Body ♂♂ (n=3) length: 22.50–25.25 mm, width: 7.75–9.00 mm, length/width ratio: 2.81–2.97; ♀♀ (n=8): length: 23.25–31.25 mm, width: 8.00–11.50 mm, length/width ratio: 2.72–2.91. Body colouration always green in background, most specimens with purple/copper tint on top of disc; one specimen from Trincomale (MHNG) dark blue-green and one without locality data (also MHNG) turquoise-green. Apicolateral impressions on elytra present in all examined specimens and of constant size. Pronotum varies in density of punctuation, some specimens with quite sparsely punctate pronotum in contrast to neotype. Medial line from nearly invisible to well

visible but always not elevated. Principal impressions shallow, in some specimens hardly visible at all. Structure of elytra in all specimens quite similar, only groups of punctures in internal part variously impressed. Aedeagus (n=1) length: 6.11 mm, width: 1.33 mm, length/width ratio: 4.59. Apices of parameres obliquely rounded. Penis stout-oval, in ventral view with deep and wide impression along midline, lateral sides with deep canaliculus, which has both margins equal (Fig. 73).

Differential diagnosis. *Chrysodema* (*C.*) *sonnerati* is similar only to *C.* (*C.*) *lewisii* and the latter can be distinguished by elytra with indicated costae on 2nd and 4th intervals and moderately deep impression along entire outer margin of each elytron, while *C.* (*C.*) *sonnerati* has elytra smooth, without indicated costae and the lateral impression is shallow and limited only to apical 1/3 (tapering part). *Chrysodema* (*C.*) *sonnerati* also has very shallow principal impressions on pronotum (shallowest of all *Chrysodema*, with exception of *Thymedes*) and medial line not indicated, while *C.* (*C.*) *lewisii* has them shallow but distinctly impressed. Finally lateral sides of abdominal ventrites in *C.* (*C.*) *sonnerati* are sparser and finer punctate, with distances between punctures at least 2 × as wide as puncture diameter, while *C.* (*C.*) *lewisii* has distinctly coarser and denser punctation with distances between punctures equal to puncture diameter. Both species are also separated geographically as *C.* (*C.*) *sonnerati* is restricted to Sri Lanka while *C.* (*C.*) *lewisii* occurs in Japan and Taiwan. For summary see Table 1 on page 11.

Distribution. Sri Lanka.

Remarks. In the original description, Laporte de Castelnau & Gory (1835: 3) wrote following: ‘Nous ne connaissons de cette espèce qu’un individu en très-mauvais état, rapporté par Sonnerat; il serait possible qu’il dût entrer dans le genre *Chrysochroa*. Nous croyons cependant y distinguer un écusson extérieur. C’est à l’obligeance de M. Serville que nous devons la communication de cette espèce. [Of this species we know only one individual in very bad condition, reported by Sonnerat; it is possible that it belongs to the genus *Chrysochroa*. Nevertheless, we suppose that it has external scutellum. It is the kindness of Mr. Serville, that we owe the communication of this species.]’. Therefore we suppose they have never seen an actual specimen of this species and only obtained information from Mr. Serville. Depository of Coleoptera from the Serville collection is unknown. Non-beetle parts of his collection are nowadays deposited in MNHN, NHMW and in the Spinola collection (in Torino) (Horn & Kahle 1935). We have searched all three museum collections or contacted respective curators but the original holotype specimen was not found (Giachino 1982, H. Schillhammer pers. comm. April 2018). Therefore we assume that the holotype is lost and designate a neotype for this species not only to fix its identity but also to fix the concept of the genus. Bellamy (2002a: 187) published photograph of ‘*Chrysodema sonnerati* Laporte de Castelnau & Gory. 1835. Type specimen in Museum National d’Histoire Naturelle, Paris. Body length: 25 mm. Photograph: T. Lander.’. However, this specimen certainly does not represent the original holotype because 1) it is well preserved, not damaged as mentioned in the original description and 2) has length only 25 mm while Laporte de Castelnau & Gory (1835: 3) mentioned length: ‘Long. 15 lig.’; we suppose that authors meant French lines and 1 ligne=2.2558 mm, thus the holotype should be 33.873 mm long. On the contrary, Lander (2003) was unable to locate the holotype, however published exactly the same photograph of *C. sonnerati* he provided to Bellamy.

Laporte de Castelnau & Gory (1835: 3) wrote the size of holotype as ‘Long. 15 lig. Larg 4 lig.’, what equals to 33.9 × 9.04 mm (1 ligne ≈ 2.26 mm). The largest specimen of *C. sonnerati* known to us has length 31.25 mm. On the other hand, the length itself is quite variable in *Chrysodema* and such large specimens are known in many species. However, the length/width ratio 3.75 is very strange, which is not present in any other species of *Chrysodema*. Moreover, when the original figure is measured (Laporte de Castelnau & Gory, 1835: Pl. 1, Fig. 2) the length/width ratio is only 3.23. On the other hand, Laporte de Castelnau & Gory probably had not seen the specimen, thus it is questionable how the original figure was made and how the original specimen was measured. In our opinion this seems to be result of an error in measurements, perhaps due to the fact that the original type was damaged. We checked also several other species of *Chrysodema* described by Laporte de Castelnau & Gory (1835) and the specimens have stouter body than mentioned in the original description but the difference is not as conspicuous as in *C. sonnerati*. Even when the ratio from the figure is considered it is still quite narrow in contrast to species of *Chrysodema* as they have length/width ratio: 2.70–3.02(3.13). Finally, the original type locality ‘Indes-Orientales’ is not helpful to determine where the specimen was collected.

Due to these discrepancies the designation of *C.* (*C.*) *sonnerati* as the type species of *Chrysodema* is a bit unfortunate. On the other hand, the taxon presently identified as *C.* (*C.*) *sonnerati* agrees with the original description (except for the size) as well as the basic original figure and it is in perfect agreement with *C. yerburyi*, which was synonymized with *C. sonnerati*. Therefore we decided to designate a neotype of *C. sonnerati* from the lectotype of

C. yerburi not only to fix the identity of the taxon but also to conserve the present concept of the genus *Chrysodema* which has been in use for the past 100 years.

TABLE 1. Diagnostic characters of the *Chrysodema (C.) sonnerati* species-group.

	<i>C. (C.) sonnerati</i> Lap. & Gory, 1835 Figs 10–12, 73.	<i>C. (C.) lewisii lewisii</i> Saunders, 1873 Figs 1–3, 7–9, 74.	<i>C. (C.) lewisii nakatai</i> subsp. nov. Figs 4–6, 75.
pronotum	medial line weakly indicated, principal impressions small, shallow and weakly delimited from disc	medial line well visible, principal impressions always distinct	medial line well visible, principal impressions always distinct
elytra	lateral impression on elytron present only on apical third; elytra shiny	lateral impression on elytron present along entire side; elytra shiny	lateral impression on elytron present along entire side; elytra semi-matt; circa half of specimens with impression on basal third of each elytron
male genitalia	penis stout-oval, apices of parameres obliquely rounded (Fig. 73)	penis broadly-oval, apices of parameres rounded (Fig. 74)	penis broadly-oval, apices of parameres subtruncate, inner tip angular (Fig. 75)
distribution	Sri Lanka	Japan (north of Miyako Island)	Japan (Yaeyama Islands) and Taiwan

Chrysodema (Chrysodema) lewisii lewisii Saunders, 1873

(Figs 1–3, 7–9, 74)

Chrysodema Lewisii Saunders (1873): 510 (original description); Lewis (1893): 328 (note on holotype, faunistics); Lewis (1896): 335 (noted); Kurosawa (1954): 30 (review of distribution, incl. map Fig. 3); Kurosawa et al. (1985): Pl. 1, Fig. 17 (iconography); Akiyama & Ohmomo (1997): 10 (catalogue); Akiyama & Ohmomo (2000): Pl. 44, Figs. 466-1, 466-2, 466-3 (iconography); Ohmomo & Fukutomi (2013): 20 (biological observations), 112 (redescription, faunistics), 175 (catalogue), Pl. 4, Figs. 10-1, 10-2, 10-3, 10-4, 10-5 (iconography).

Chalcophora Lewisi [sic!]: Kerremans (1885): 126 (catalogue); Heyne & Taschenberg (1908): 133 (noted).

Chalcophora Lewisii: Schönfeldt (1887): 112 (catalogue).

Chrysodema Lewisi [sic!]: Kerremans (1892): 39 (catalogue); Kerremans (1903): 76 (catalogue); Jakobson (1913): 780 (catalogue); Miwa (1929): 58 (redescription, faunistics); Miwa & Chûjô (1936): 3 (catalogue, ex parte); Miwa & Chûjô (1940): 54 (distribution and faunistics, ex parte), Pl. VII, Fig. 8 (colour drawing).

Chrysodema (Chrysodema) Lewisi [sic!]: Kerremans (1909): 515 (key), 536 (redescription, incl. colour Fig. 7, Pl. 22); Obenberger (1926): 132 (catalogue); Miwa & Chûjô (1940): 62 (faunistics, summary of published records); Chûjô & Kurosawa (1950): 2 (fauna of Shikoku).

Chrysodema (Chrysodema) lewisii: Lander (2003): 14 (key), 65 (redescription), 83 (colour Fig. 134); Mühle (2003): 45 (noted, ex parte); Kubán (2006): 345 (catalogue, ex parte); Bellamy (2008): 533 (catalogue, ex parte); Hołyński (2014): 375 (clarification of assignment to *Chrysodema* s. str.); Kubán (2016): 460 (catalogue, ex parte).

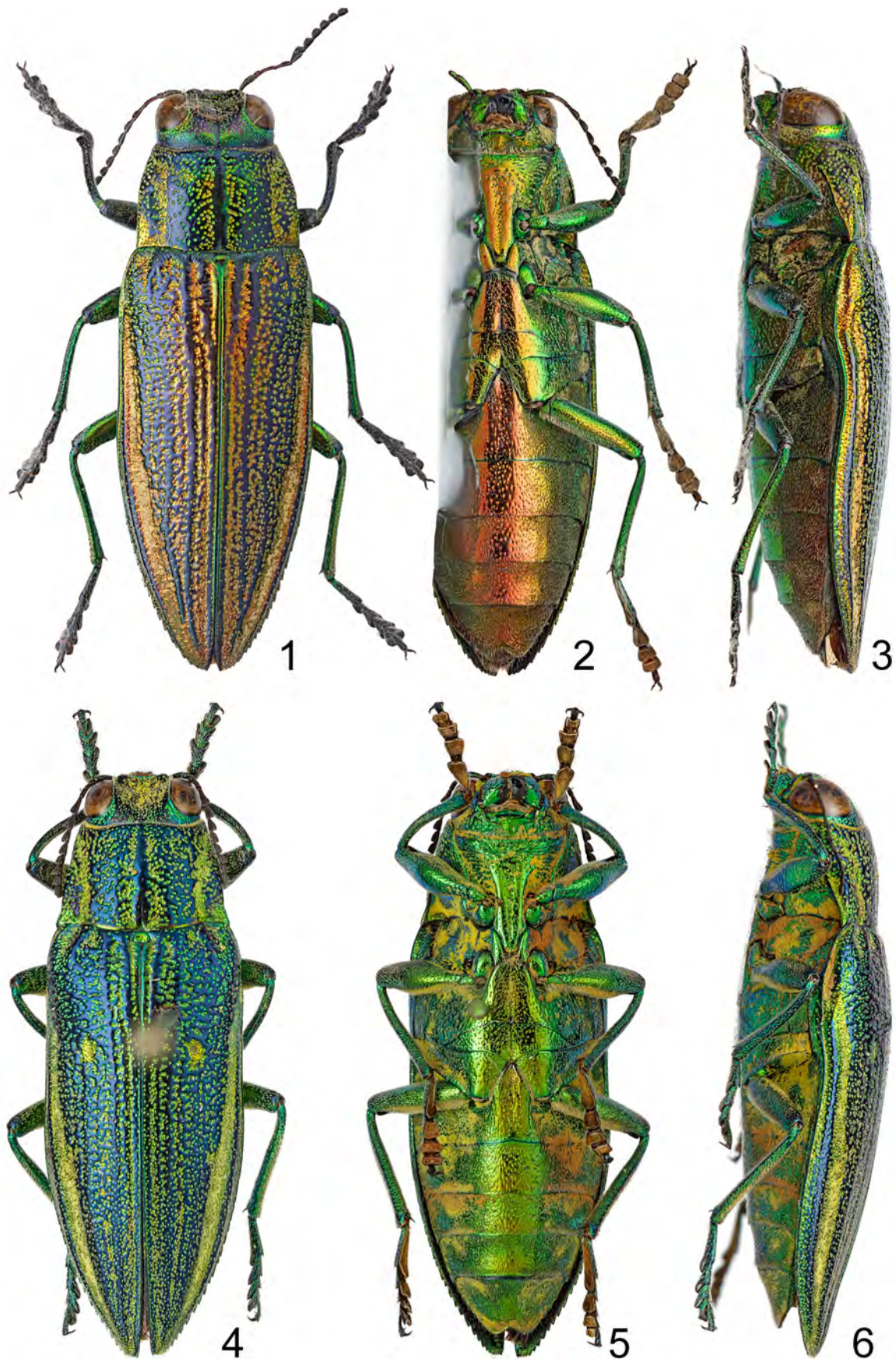
Chrysodema lewisii ab. *nagaokai* Kurosawa (1954): 30 (infrasubspecific name, ex parte).

Chrysodema oschimana Nonfried (1895): 297 (original description).

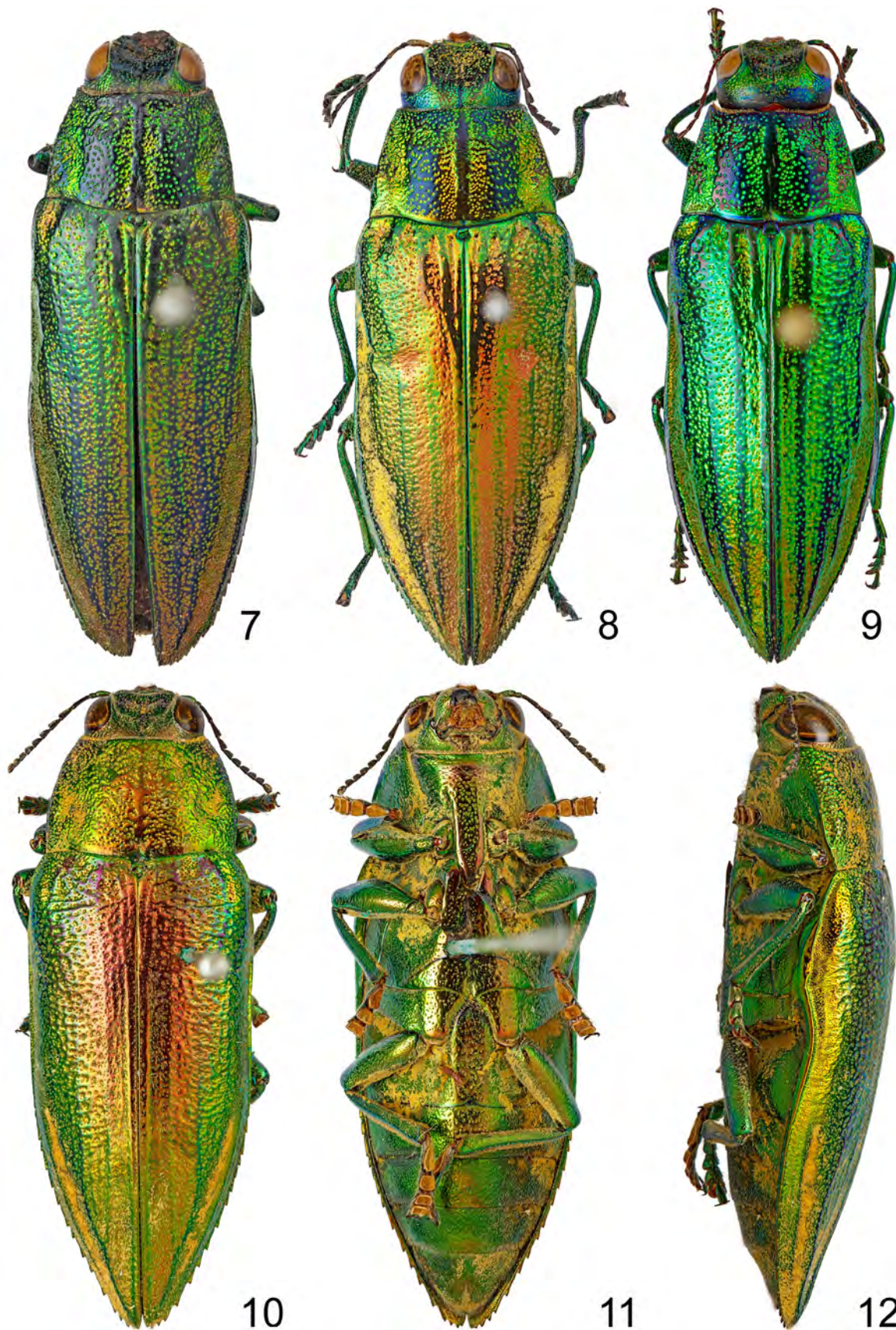
Chrysodema oshimana [sic!]: Lewis (1896): 335 (as synonym of *C. lewisii*); Kerremans (1903): 76 (catalogue, in synonymy of *C. lewisi* [sic!]); Heyne & Taschenberg (1908): 133 (noted in synonymy of *C. lewisi* [sic!]); Jakobson (1913): 780 (catalogue, in synonymy of *C. lewisi* [sic!]); Miwa (1929): 58 (noted in synonymy of *C. lewisi* [sic!]); Miwa & Chûjô (1936): 3 (catalogue, in synonymy of *C. lewisi* [sic!]); Miwa & Chûjô (1940): 55, 63 (noted in synonymy of *C. lewisi* [sic!]); Akiyama & Ohmomo (1997): 10 (catalogue, in synonymy of *C. lewisii*).

Chrysodema (Chrysodema) oshimana [sic!]: Obenberger (1926): 132 (catalogue, in synonymy of *C. lewisi* [sic!]); Kurosawa (1954): 30 (noted in synonymy of *C. (C.) lewisii*); Lander (2003): 65 (revision, in synonymy of *C. (C.) lewisii*); Kubán (2006): 345 (catalogue, in synonymy of *C. (C.) lewisii*); Bellamy (2008): 533 (catalogue, in synonymy of *C. (C.) lewisii*), 535 (listed as synonym of *C. (C.) lewisii*).

Chrysodema (Chrysodema) oschimana: Kubán (2016): 460 (catalogue, in synonymy of *C. (C.) lewisii*).



FIGURES 1–6. *Chrysodema*, general aspect: 1–3—*C. (C.) lewisii lewisii* Saunders, 1873 (holotype, ♂ 19.50 mm). 4–6—*C. (C.) lewisii nakatai* subsp. nov. (holotype, ♂ 18.25 mm). 1, 4—dorsal view; 2, 5—ventral view; 3, 6—lateral view.



FIGURES 7–12. *Chrysodema*, general aspect: 7—*C. (C.) oschimana* Nonfried, 1895 (syntype, ♀ 23.50 mm)=*C. (C.) lewisii lewisii* Saunders, 1873. 8—*C. (C.) lewisii lewisii* Saunders, 1873 (Akajima Is. (DFPC), ♀ 25.25 mm). 9—*C. (C.) lewisii lewisii* Saunders, 1873 (Hachijo Is. (DFPC), ♀ 21.75 mm). 10–12—*C. (C.) sonnerati* Laporte de Castelnau & Gory, 1835 (neotype, ♀ 28.75 mm) and lectotype of *C. (C.) yerburyi* Waterhouse, 1905. 7–10—dorsal view; 11—ventral view; 12—lateral view.

Type localities. *Chrysodema lewisii*: original type locality 'Japan' here specified to: Japan, Kyushu Island, Nagasaki (see remarks); *C. oschimana*: 'Oshima, Süd-Japan'.

Type material examined. *Chrysodema lewisii*: HOLOTYPE (by monotypy): ♂, 'Japan / D. Lewis. / 1910–320. [w, p] // Chrysodema / Lewisii Es. [w, h] // Type / H. T. [r, p, circle]' (BMNH). Specimen was provided with an additional red printed label: 'HOLOTYPE (by monopyty) / *Chrysodema / lewisii* / SAUNDERS, 1873 ♂ / David Frank & / Lukáš Sekerka labelled VIII. 2018 [date handwritten]'.

C. oschimana: SYNTYPES (1 ♂, 1 ♀): ♂, 'Coll.Nonfried / Cagosima S.Japan. [w, p] // oshimana / Type Nfd [w, h] // TYPE [r, p] // MUSÉUM PARIS / 1952 / COLL. R. OBERTHUR [y, p]' (MNHN); ♀, 'Japan. [w, h] // Chrysodema / oshimana / Type Nfd [w, h] // TYPE [r, p] // MUSÉUM PARIS / 1952 / COLL. R. OBERTHUR [y, p]' (MNHN). Both specimens were provided with an additional red printed label: 'SYNTYPE [sex] / *Chrysodema / oschimana* / NONFRIED, 1895 / David Frank labelled IX. 2017 [date handwritten]' and also white printed label '*Chrysodema (Chrysodema) / lewisii lewisii* / SAUNDERS, 1873 / David Frank det. IX. 2017 [date handwritten]'.

Additional material examined (13 ♂♂, 55 ♀♀). **JAPAN:** Japon, Meyer D., 1 ♀ (MNHN); Japon, 1 ♀ (MNHN). **TOKYO PREF.: Hachijō Island:** Hachijoshima, 1925, 1 ♂, 1 ♀ (NHMB); Hachijo Is., 9.x.1981, 1 ♀ (DFPC). **WAKAYAMA PREF.: Honshū Island:** Kata., Wakayama-shi, 6.vii.1963, S. Goto, 1 ♀ (DFPC). **KAGOSHIMA PREF.: Kyūshū Island:** Cape Sata, Sata-chō (now, Minami Oosumi-shō), Kimotsuki-gun, 1 ♀ (DFPC). **Kuchinorabu Island:** 13.vi.1998, Y. Yamaoka leg, 2 ♂♂ (DFPC). **Tokara Islands:** Nakano-shima, 4.viii.1989, Teruhisa Ueno, 1 ♀ (BMNH); Nakano-shima, 5.–6.viii.1989, Teruhisa Ueno, 1 ♀ (BMNH). **Yakushima Island:** Miyanoura, Yakushima Is., 15.vii.1968, Coll. K. Sakai, 1 ♀ (ATMR, coll. R. Novak. **Amami Ōshima Island:** Archipel Liou-Kiou, Ile d'Oshima, Ferrié 1895 (1 ♂, 13 ♀♀ MNHN; 1 ♀ IRSN); Japon, Oshima, Ferrié, iv.–v.1897, 1 ♂, 2 ♀♀ (MNHN); Japon, Oshima, Ferrié, vii.–viii.1897 (1 ♂, 13 ♀♀ MNHN; 1 ♀ NMPC); Japon, Oshima, J.B.Ferrié 1899, 1 ♀ (MNHN); Imasato, 9.viii.1961, K. Yamada, 1 ♀ (NMPC); Hatsuno, 1.viii.1963, Y. Kurosawa, 1 ♀ (NMPC); Hatsuno, 27.vi.1968, T. Komiya, 1 ♂ (NMPC); Mt. Yuwandake, 9.vii.1968, K. Sakai, 1 ♀ (MHNG); Hatsuno, 24.vi.1972, T. Ochi (1 ♂ EJBS; 1 ♀ ATMR coll. G. Novak; 1 ♀ MNCN, coll. A. Cobos); Hatsuno, 28.vi.1969, K. Kume leg., 1 ♀ (MNCN, coll. A. Cobos); Hatsuno, Sumiyo-son, 26.vi.1970, K. Masaki, 1 ♂ (MNCN, coll. A. Cobos); Amami Is., vii.1974, 1 ♀ (VKSC); Mt. Yuwan, 24.vi.1982, N. Yamamoto leg., 1 ♂ (VKSC); Yuwan, 26.vi.1982, I. Douge leg. (1 ♂ DFPC; 1 ♀ SGBG); Ishira, 3.vii.1990, Y. Kaneko, 1 ♀ (DFPC); Mt. Takadayama, 6.vii.1990, K. Masaki, 1 ♂ (ATMR, coll. R. Novak; Oshima, viii.1997, 2 ♀♀ (MHNG, one specimen figured by Lander (2003: Fig. 134)); Kuniano, 27.vi.1999, I. Douge leg., 1 ♀ (DFPC). **OKINAWA PREF.: Okinawa Island:** Okinawa, 14.viii.1891, 1 ♀ (MNHN); Yona, vii.1970, H. Makihara, 1 ♀ (DFPC); Nago-Gusuku, 28.vii.1971, K. Akiyama leg., 1 ♂ (ATMR, coll. R. Novak. **Kerama Islands:** Aka-jima, 30.viii.1989, T. Ueno, 1 ♀ (DFPC).

Redescription of holotype. Well preserved ♂ specimen with all appendages. Length 19.50 mm, width 7.00 mm, length/width ratio: 2.79.

Body generally metallic green, shiny. Impunctate (or micropunctate) areas on dorsal side dark blue. Pronotum generally with bright metallic green macropunctuation, principal impression and posterior corners with golden-copper punctation. Punctuation on elytra variegated golden-copper, and elytra appear to have yellow irregular stripes; principal impression absent; lateral impression bright copper; lateral margin green. Ventral side bright green with variegated copper-golden tint. Legs including tarsi metallic green, ventral pads black, basally brown. Labrum, maxillae and labium including palpi yellow. Scape and pedicel metallic, remaining antennomeres brownish-black.

Pronotum moderately densely macropunctate with broad and sparsely micropunctate interspaces. Macropunctuation laterally gradually coarser and denser. Macropunctures in central part round small and isolated, with small fovea. Medial line well visible, very sparsely micropunctate, not elevated. Medial impressions shallow but distinct. Principal impressions shallow and weakly delimited from disc. Lateral impressions absent. Lateral margin rounded distinct in basal 3/4.

Elytra regularly convex generally smooth, without additional impressions or costae; base with slightly impressed rows of punctures thus intervals appear somewhat elevated for short distance. Intervals 2 and 4 more or less elevated on apical 1/4, uniting on apical 1/6 and continuing as single costa (interval 6). Interval 8 elevated along entire length forming moderately broad rounded costa. Area between intervals 6 and 8 shallowly but distinctly impressed, with condensed wax layer thus appears like elongate opaque yellow stripe. Sutural interval gradually elevated towards apex and with row of punctures along suture. Punctuation generally irregular, in central part forming partial rows. Internally (up to position of imaginary interval 6) formed by irregularly dispersed groups of 2–6 punctures and confusedly arranged additional separate punctures. Groups of punctures more or less gradually im-

pressed from postscutellar area towards lateral sides and apex. Interspaces circa 1–4 × as wide as puncture diameter, very sparsely micropunctate, micropunctures hardly visible at magnification 50 ×. Punctuation between position of imaginary interval 6 and interval 8 completely irregular, dense and coarse but punctures smaller than on other parts of disc, interspaces mostly narrower than puncture diameter and with transverse wrinkles thus whole area of lateral impression appears rugose. Interval 8 very sparsely punctate, punctures of same size as in central part of disc. Punctures externally of interval 8 smaller, subapproximate to those in lateral impression but sparser arranged. Epipleura in basal 1/4 broad, appears rugose due to transverse punctures, moderately densely punctate; in narrowing, continuous, without a tooth.

Mid and hind femora moderately densely punctate; fore femora distinctly more sparsely punctate and more shiny.

Ventral side of body overall coarsely and very densely punctate, only central parts of thoracic ventrites sparsely punctate (Fig. 2). Lateral sides of all abdominal ventrites very densely and moderately coarsely punctate (Fig. 3).

Aedeagus length: 4.89 mm, width: 1.11 mm, length/width ratio: 4.41. Apices of parameres rounded. Penis broadly-oval, in ventral view with shallow and linear impression along midline, lateral sides with deep canaliculus, which has dorsal side much broader than ventral (Fig. 74).

Variation. Body ♂♂ (n=14) length: 16.50–21.00 mm, width: 6.00–7.25 mm, length/width ratio: 2.73–3.08; ♀♀ (n=54): length: 18.75–27.75 mm, width: 6.50–10.00 mm, length/width ratio: 2.53–3.19. Dorsal colouration variable but usually with distinct purple tint. One specimen has predominantly blue tint and another one has predominantly green tint. Approximately third of purple specimens with intervals 2 and 4 green, remaining ones with intervals of the same colour as elytra. Punctuation of elytra and pronotum moderately variable, some specimens with somewhat denser punctuation. Elytral intervals from flat to slightly convex. Aedeagus (n=3) length: 4.78–5.33 mm, width: 1.00–1.17 mm, length/width ratio: 4.41–4.78.

Differential diagnosis. For comparative characters see diagnosis of *C. (C.) sonnerati* and *C. (C.) lewisii nakatai*, and Table 1 on page 11.

Biology. According to Saunders (1873: 511) the holotype was collected on oak. Ohmomo & Fukutomi (2013) reported adults feeding on leaves of *Machilus thunbergi* Siebold & Zucc. (Lauraceae) and *Terminalia catappa* L. (Combretaceae).

Distribution. Japan: from Hachijō and Tsushima islands (Kurosawa 1954) south to Miyako Island (T. Nakata pers. comm. 2018).

Remarks. On the locality label of type there is written only ‘Japan’. Saunders (1873) did not write accurate locality in description but Lewis (1893: 328) wrote ‘Hab. Kiushiu and Ruikiu Islands. The original specimen came from Nagasaki, and in 1886 Mr. Pryer found it on Oshima.’ Therefore the type locality is here specified.

Nonfried (1895) described *C. oschimana* from Oshima (Fig. 7). He compared it to *C. rouxi* Laporte de Castelnau & Gory, 1835 and did not mention anything about *C. lewisii* therefore we suppose the species was unknown to him. We studied two syntypes deposited in MNHN and they are identical to the nominotypical subspecies of *C. lewisii*.

Kurosawa (1954: 30) described *C. lewisii* ab. *nagaokai* based on two specimens from Kumejima and Ishigaki islands. He separated the taxon by ‘small but distinct specular golden-aeonous spot on each elytron at the middle of the anterior third’. However the name is infrasubspecific according to the Article 45.6.2 (ICZN 1999).

Chrysodema lewisi is a variable species, which in our opinion has at least four distinct populations based on examined material. Description of the aberration *nagaokai* combines two different ones, both having principal impression on elytra, which is absent in the nominotypical form. One population, from Yaeyama Islands (Ishigaki, Iriomote and Yonaguni), has semi-matt and dark blue dorsum with green punctuation and often with dark purple tint and overall very coarse punctuation. The principal impression is of small size or absent. We examined 32 specimens which are morphologically quite uniform and differ in constant characters from the nominotypical form therefore we describe them as a new subspecies, described below.

The other population, from Kumejima and Kerama Islands, has very bright green and strongly shiny body with copper tint. The elytra are with large principal impression and without elevated costae; all intervals are practically not visible and covered with dense macropunctuation (more or less distinct in other populations). We studied one specimen from Akajima (Fig. 8), which is in agreement with published photos by Akiyama & Ohmomo (2000: Pl. 44, Figs 466-3) from Tokashikikijima, Kerama Islands and Ohmomo & Fukutomi (2013: Pl. 4, Fig. 10-3) from Kumejima. This population looks also very distinct and possibly belongs to a new

subspecies but we examined only one female specimen and therefore do not describe it until we have more material available.

Finally we have three specimens from Hachijojima, which also look somewhat distinct (Fig. 9) as they are dark green and quite shiny. Since Hachijojima is rather isolated they might be a separate subspecies but again we had only very limited material available and therefore do not describe this form.

We provisionally list forms from Hachijojima, Kumejima and Kerama Islands under the nominotypical subspecies until more material is available to evaluate their status. It would be desirable to use molecular methods and sample *C. (C.) lewisii* in its range to see whether any differences can be found.

***Chrysodema (Chrysodema) lewisii nakatai* subsp. nov.**

urn:lsid:zoobank.org:act:AE24D928-41D0-4B41-87F7-B9FB0C716D02

(Figs 4–6, 75)

Chrysodema lewisii: Miwa (1933): 6 (ex parte, faunistics: Iriomote); Miwa (1936): 11 (ex parte, faunistics: Taiwan); Miwa & Chûjô (1936): 3 (ex parte, catalogue); Miwa & Chûjô (1940): 54 (ex parte, distribution and faunistics); Ong & Hattori (2019): 18 (diagnosis, iconography).

Chrysodema lewisii ab. *nagaokai* Kurosawa (1954): 30 (infrasubspecific name, ex parte).

Chrysodema (Chrysodema) lewisii [ex parte]: Mühle (2003): 45 (noted); Kubáň (2006): 345 (catalogue); Bellamy (2008): 533 (catalogue); Kubáň (2016): 460 (catalogue).

Type locality. Japan, Okinawa Prefecture, Yaeyama Islands, Iriomote Island, Funaura.

Type material examined. HOLOTYPE: ♂, ‘Funaura / Iriomote Is. / Okinawa Pref. / JAPAN / 27, V, 2016 / Tadafumi NAKATA lgt. [w, p]’ (NMPC). PARATYPES (14 ♂♂, 17 ♀♀): **JAPAN: Iriomote Island:** 2 ♂♂, 3 ♀♀, same data as holotype (2 ♂♂, 2 ♀♀ DFPC; 1 ♀ VKSC); 1 ♂, ‘J. Haupt / Funaura / Iriomote / 1996 - 5 - 27 [w, p]’ // cf. *Chrysodema / manillarum / Thomson [w, h] // Chrysodema (s. str.) / lewisii Saund. / det. S. Gottwald 2010 [w, p]’ (MFNB); 1 ♀, ‘S JAPAN, RYUKU / IRIMOTE ISL. 30.V. / Yaeyama 1999 [w, h] // Chrysodema / lewisii / Saund / Dét. T. LANDER 2007 [w, h/p]’ (EJBS); 1 ♀, ‘INABA / IRIOMOTE ISL. / JAPAN - 14.VII. 1970 / C.(Coll.) G. MINET [w, h/p]’ // [dorsal side]: comparé / au Type [r, p]; [ventral side]: ab. *nagaokai* / NSMT 6.2000 [r, h] // *Chrysodema / lewisi / ab. nagaokai / Kur. / Dét. T. LANDER 1999 [w, h/p]’ (MHNG). Ishigaki Island: 3 ♂♂, 3 ♀♀, ‘Mt. Yarabu-dake / Ishigaki Is. / Okinawa Pref. / JAPAN / 4, VII, 2016 / Tadafumi NAKATA lgt. [w, p]’ (DFPC); 2 ♂♂, ‘mt.yarabedake / is.ishigaki // 7-6-2002 / i.douge leg. [w, p]’ (SGBG). **Yonaguni Island:** 1 ♀, ‘Mt. Urabe, Is. Yonaguni / 10. VII. 1964 / N. Ohbayashi leg. [w, p] // *Chrysodema / lewisii / E. SAUNDERS / det. K. Akiyama, 1984 [w, h/p]’ (WBWA), 3 ♂♂, 3 ♀♀, ‘Mantabaru Forest Park / Yonaguni Is. / Okinawa Pref. / JAPAN / 30, VI, 2017 / Tadafumi NAKATA lgt. [w, p]’ (DFPC); 1 ♀ ‘Urabe-dake / (Is. Yonaguni) / 9. VI. 1973 / K. Masaki leg. [w, h] // *Chrysodema / lewisii Saund. / det. Akiyama 1978 [w, p]’ (ATMR, coll. R. Novak. TAIWAN: 2 ♀♀, ‘05-VII-2014 / TAIWAN: Yilan Co., / Nanao Farm / F. S. Hu leg. [w, h] // Host plant: / *Terminalia catappa [w, h]’ (FSHC, NCHU); 3 ♂♂, ‘TAIWAN: New Taipei / City, Tucheng / 30-VI-2006 / Fengji Zheng leg. [w, h/p]’ (TARI, DFPC, NMPC); 2 ♀♀, ‘TAIWAN: Taipei City / Old Tianmu Hiking / Trail, 14-VIII-2017 / Chewei Kuo leg. [w, h/p]’ (TARI). All specimens were provided with an additional red printed label: ‘HOLOTYPE [or PARATYPE respectively] [sex] / *Chrysodema (Chrysodema) / lewisii / nakatai* subsp. nov. / David Frank & / Lukáš Sekerka det. I. 2019 [date handwritten]’.*****

Description of holotype. Well preserved ♂ specimen with all appendages. Length 18.25 mm, width 6.50 mm, length/width ratio: 2.81.

Body generally metallic green, sub-matt. Impunctate (or micropunctate) areas on dorsal side dark blue. Pronotum generally with bright metallic green macropunctuation. Punctuation on elytra bright metallic green, and elytra appears to have yellow irregular stripes; principal and lateral impressions bright golden-green; lateral margin bluish-green. Ventral side bright metallic green. Legs including tarsi metallic green, ventral pads black, basally brown. Labrum, maxillae and labium including palpi yellow. Scape and pedicel metallic, remaining antennomeres brownish-black.

Pronotum moderately densely macropunctate with narrow and sparsely micropunctate interspaces. Macropunctuation laterally gradually coarser and denser. Macropunctures in central part moderately large with large fovea; often several punctures connected and forming short impressed lines. Medial line well visible, very sparsely micropunctate, apparently

elevated due to coarse punctation in medial impression. Medial impressions shallow but distinct. Principal impressions shallow and weakly delimited from disc. Lateral impressions absent. Lateral margin rounded, distinct in basal 3/4.

Elytra regularly convex generally smooth, without costae, with lateral and small principal impression; base with moderately impressed rows of punctures thus intervals appear slightly but distinctly elevated for short distance. Intervals 2 and 4 more or less elevated on apical 1/4, uniting on apical 1/6 and continuing as single costa (interval 6). Interval 8 elevated along entire length forming moderately broad rounded costa. Area between intervals 6 and 8 shallowly but distinctly impressed, with condensed wax layer thus appears like elongate opaque yellow stripe. Suture interval gradually elevated towards apex and with row of punctures along suture. Punctation irregular. Internally (up to position of imaginary interval 6) formed by irregularly dispersed groups of 2–6 punctures and confusedly arranged additional separate punctures. Groups of punctures more or less gradually impressed from postscutellar area towards lateral sides and apex. Interspaces circa 1–2 × as wide as puncture diameter, very sparsely micropunctate, micropunctures hardly visible at magnification 50 ×. Punctation between position of imaginary interval 6 and interval 8 completely irregular, dense and coarse but punctures smaller than these on other parts of disc, interspaces narrower than puncture diameter and with transverse wrinkles thus whole area of lateral impression appears rugose. Interval 8 very sparsely punctate, punctures of same size as in central part of disc. Punctures externally of interval 8 smaller, subapproximate to those in lateral impression but more sparse. Epipleura in basal 1/4 broad, appears rugose due to transverse punctures, moderately densely punctate; in narrowing, continuous, with small obtusely angled tooth.

Mid and hind femora moderately densely punctate; fore femora distinctly more sparsely punctate and more shiny.

Ventral side of body (Fig. 5) overall coarsely and very densely punctate, only central parts of thoracic ventrites sparsely punctate. Lateral sides of all abdominal ventrites very densely and moderately coarsely punctate (Fig. 6). Aedeagus length: 5.00 mm, width: 1.28 mm, length/width ratio: 3.91. Apices of parameres subtruncate, inner tip angular. Penis broadly-oval, in ventral view with shallow and linear impression along midline, lateral sides with deep canaliculus, which has dorsal side much broader than ventral (Fig. 75).

Variation. Body ♂♂ (n=12) length: 17.00–19.50(21.00) mm, width: 5.75–7.25 mm, length/width ratio: 2.69–3.00; ♀♀ (n=11): length: 18.25–21.75(24.25) mm, width: 6.25–8.50 mm, length/width ratio: 2.62–2.92. Approximately half of studied specimens have dorsum with dark purple tint. Principal impression on elytra of variable size from moderately large to very small (5 ♂♂ and 5 ♀♀) or absent (7 ♂♂ and 6 ♀♀). Structure of elytra and pronotum nearly constant.

Aedeagus (n=9) length: 4.78–5.11 mm, width: 1.06–1.28 mm, length/width ratio: (3.91)4.35–4.78.

Differential diagnosis. The new subspecies can be easily separated from the nominotypical one by having semi-matt and usually dark blue dorsum with green punctation (vs. strongly shiny and green or green-purple dorsum); the surface of elytra and pronotum is subrugose due to coarser and denser punctation and more elevated intervals (vs. smoother and without elevated costae); and apices of parameres subtruncate with inner tip angular (vs. evenly rounded without sharp inner angle). For summary see Table 1 on page 11.

Biology. According to the label data beetles feed on *Terminalia catappa* L. (Combretaceae).

Etymology. This species is dedicated to Tadafumi Nakata, Japanese entomologist and collector of most of the type series, who kindly provided us with specimens.

Distribution. Japan (Yaeyama Islands) and Taiwan.

Remarks. Kurosawa (1954) described the aberration *nagaokai* based on two specimens from Kumejima and Ishigaki (see also Remarks in nominotypical subspecies). We did not study the original material but almost certainly the specimen from Ishigaki belongs to the subspecies *C. (C.) lewisii nakatai* subsp. nov. Since the name is infrasub-specific it does not interfere with the description of the new subspecies.

Miwa (1936) recorded *C. (C.) lewisii* from Taiwan. We did not have opportunity to study the original material Miwa reported but we examined five specimens recently collected in northern Taiwan and they certainly belong to the new subspecies.

Kurosawa (1954) provided a map showing distribution of *C. (C.) lewisii*. He marked occurrence in northern and southern Taiwan, however, this is not correct. *Chrysodema (C.) lewisii* is in Taiwan restricted to the north and in the south is *C. dalmanni* Mannerheim, 1837 (U. Ong, pers. comm. 2018).

Chrysodema aurostriata species-group

Chrysodema (Chrysodema) aurostriata Saunders, 1866

(Figs 13–15, 24, 90–91)

Chrysodema aurostriata Saunders (1866): 302 (original description, incl. colour Fig. 8, Pl. XXI); Saunders (1871): 14 (catalogue); Kerremans (1892): 38 (catalogue); Kerremans (1903): 75 (catalogue); Théry (1927): 253 (noted, supposedly as *Chalcophora*); Baudon (1962): 67 (faunistics); Akiyama & Ohmomo (2000): Pl. 44, Fig. 465 (misidentification=*C. (C.) vrabeci* sp. nov.).

Chalcophora aurostriata: Gemminger & Harold (1869): 1357 (catalogue).

Chrysodema (Chrysodema) aurostriata: Kerremans (1909): 516 (key), 543 (redescription); Obenberger (1926): 130 (catalogue); Baudon (1966): 31 (noted, faunistics); Lander (2003): 14 (key), 67 (redescription); Kubáň (2006): 345 (catalogue); Belamy (2008): 528 (catalogue).

Chrysodema (Cyalithoides) aurostriata: Kubáň (2016): 460 (catalogue).

Type locality. ‘Laas’ [Laos].

Type material examined. LECTOTYPE (present designation): ♀, ‘Laas / Mouhot [w, h/p] // Saunders. / 74–18. [w, p] // [upper side]: *Chrysodema / aurostriata* (Type) Saund.; [underside]: label written / by / C. O. Waterhouse [w, h] // Type. [w, p] // Type [r, p, circle]’ (BMNH). Specimen was provided with an additional red printed label: ‘LECTOTYPE ♀ / *Chrysodema / aurostriata* / SAUNDERS, 1866 / David Frank & / Lukáš Sekerka des. VIII. 2018 [date handwritten]’.

Redescription of lectotype. Well preserved ♀ specimen, only left mid and right hind tarsi partly missing. Length 29.25 mm, width 10.00 mm, length/width ratio: 2.93.

Body generally metallic green-copper, shiny; convex parts on dorsum green and impressed ones copper. Ventral side bright green, centrally strongly copper and laterally changing to golden. Legs including tarsi metallic green, ventral pads black. Labrum, maxillae and labium including palpi pale brown (Fig. 24). Scape and pedicel metallic, remaining antennomeres brownish-black.

Pronotum moderately densely macropunctate with broad and sparsely micropunctate interspaces. Macropunctuation laterally gradually coarser and denser. Macropunctures in central part round, small and isolated, with small fovea; laterally distinctly deeper impressed and often coalescent forming oval foveae. Medial line well visible, very sparsely micropunctate, not elevated. Medial impressions shallow, but distinct. Principal impressions moderately deep and weakly delimited from disc. Lateral impressions absent. Lateral margin rounded, distinct in basal 2/3.

Elytra regularly convex with slightly elevated (more obviously on apical half) flat costae along suture and on intervals 2, 4, 6 and 8. Intervals 2 and 4 interrupted by oblique and densely punctate impression in basal 1/4 length. Intervals 4 and 6 interrupted by oblique and densely punctate impression in apical 1/3 length. Interval 6 not connected to interval 4 and separated by narrow impression. All intervals sparsely micropunctate (at magnification 50×) and in greater part also macropunctate; only apical part of interval 1 and basal part of interval 6 forming low impunctate costa. Areas between intervals slightly impressed, moderately densely macropunctate. Punctuation completely irregular, not forming rows but partly forming groups of 2–6 punctures (usually 2–3), which appears coarser and deeper impressed. Groups of punctures more or less gradually deeper impressed from postscutellar area towards lateral sides and apex. Interspaces circa 1–6 × as wide as puncture diameter, very sparsely micropunctate, micropunctures hardly visible at magnification 50 ×. Each macropuncture bearing short adherent white seta, but impressions do not appear pilose. Basal oblique impression shallow, postero-lateral one moderately deep, both with denser punctuation than rest of elytra. Epipleura in basal 1/4 broad, largely smooth and strongly shiny, then abruptly constricted with acutely angled inward tooth in constriction and then gradually narrowing apically; entire narrow part quite densely punctate, each puncture bearing long erect white seta.

Fore and mid femora in central part strongly shiny, sparsely punctate; hind femora distinctly more densely punctate. Each puncture bearing seta, setation particularly conspicuous on lower side of hind femora.

Ventral side of body (Fig. 14) overall densely and moderately coarsely punctate, only central part sparsely punctate, with large shiny impunctate areas. Entire lateral sides of abdominal ventrites I–II densely and almost uniformly punctate. Lateral sides of remaining ventrites densely punctate in basal half and sparsely in apical half (Fig. 15).

Ventrite VII moderately coarsely punctate, apex broad and rounded. Tergite VIII coarsely punctate with large punctures and moderately narrowing apically; apex evidently more than half of width of base (basal part damaged, precise measurement not possible) and weakly emarginated, not obviously bilobed (Fig. 91). Ventrite VIII broadly subpentagonal, parallel-sided, apex narrowing and rounded (Fig. 90).

Distribution. Laos.

Differential diagnosis. For comparative characters see Table 2 on page 25.

Remarks. The type of *C. (C.) aurostriata* was unknown to subsequent authors and they followed key proposed by Kerremans (1909) based on the original description only. Théry (1927) synonymized *C. (C.) tonkinea* with *C. (C.) aurostriata* based on the original description and two specimens compared to the type of the latter in his collection; for more details see remarks under *C. (C.) tonkinea*. He also noted that in his opinion the species is wrongly assigned to *Chrysodema* and should be transferred to *Chalcophora* but subsequent authors did not accept this transfer. Based on the material we studied and which was originally identified as *C. (C.) aurostriata*, this species was interpreted as having strong copper tint and elytra with very low costae and four impressions. Baudon (1962, 1966) published additional specimens from Laos (Vientianne and ‘Ban Houei Say [= Ban Houayxay; capital of the Bokèo Province]). We did not examine the original material but we studied one specimen collected in Laos in 1963 by him and it is certainly not conspecific with the type of *C. (C.) aurostriata*. It belongs to an undescribed taxon as well as the other specimens previously identified as *C. (C.) aurostriata* are described here as *C. (C.) vrabeci* sp. nov.

Lander (2003) listed in distribution of *C. (C.) aurostriata* Cambodia, Laos, Thailand, and Vietnam. However, these data include also other taxa and true *C. (C.) aurostriata* is known from a single specimen only labelled generally as Laos. Other countries in its distributional list must be removed and transferred either to *C. (C.) tonkinea* or *C. (C.) vrabeci* sp. nov.

***Chrysodema (Chrysodema) tonkinea* Kerremans, 1909 stat. rev.**

(Figs 19–23, 76, 92–93)

Chrysodema (Chrysodema) tonkinea Kerremans (1909): 516 (key), 540 (original description); Obenberger (1926): 134 (catalogue); Baudon (1966): 31 (noted, faunistics); Lander (2003): 67 (as synonym of *C. (C.) aurostriata*), 83 (colour Figs. 138–139); Kubáň (2006): 345 (catalogue, in synonymy *C. (C.) aurostriata*); Bellamy (2008): 528 (catalogue, in synonymy *C. (C.) aurostriata*), 541 (listed as synonym of *C. (C.) aurostriata*).

Chrysodema tonkinea: Théry (1927): 253 (as synonym of *C. aurostriata*).

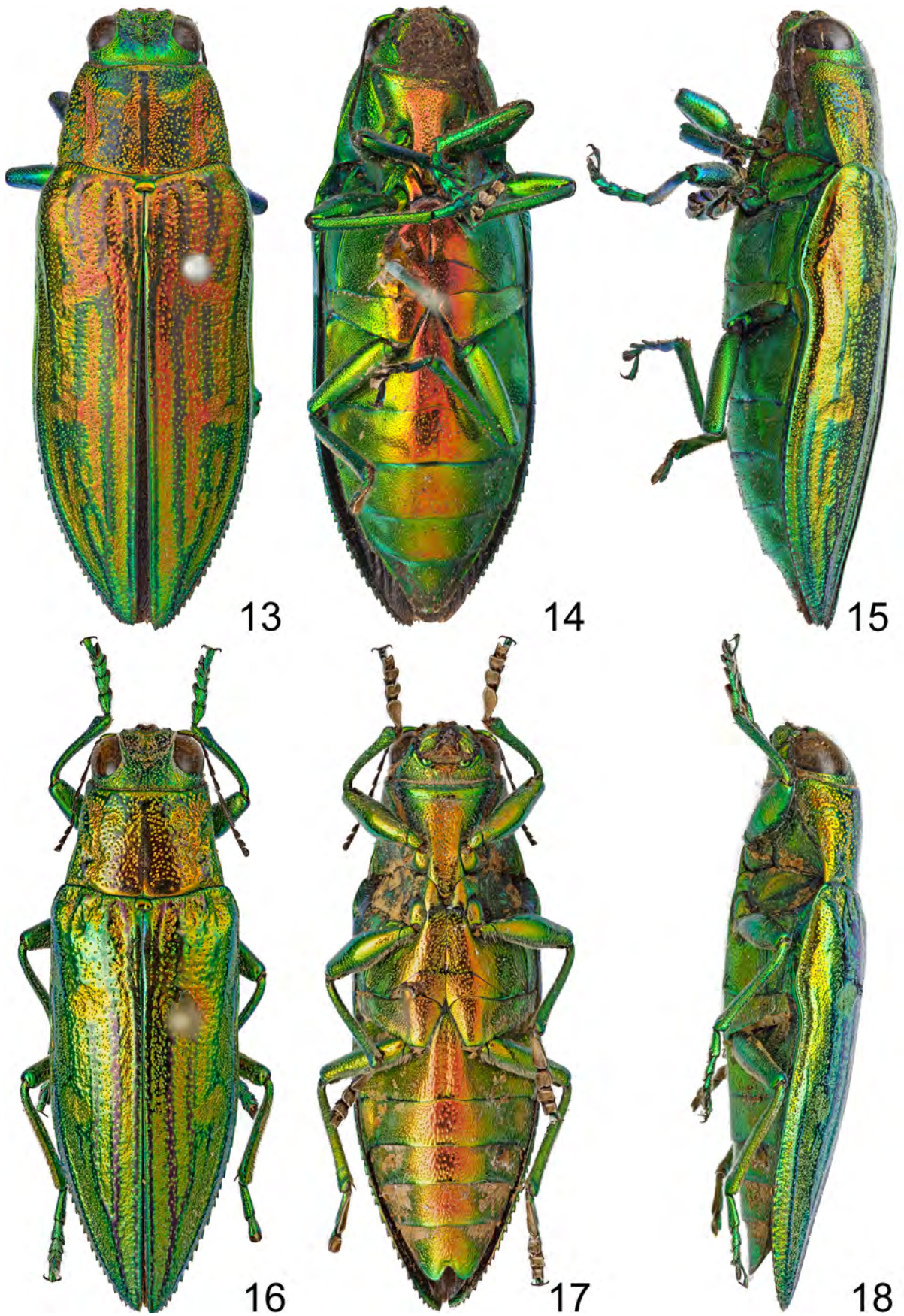
Chrysodema (Cyalithoides) tonkinea: Kubáň (2016): 460 (catalogue, in synonymy *C. (C.) aurostriata*).

Type locality. ‘Tonkin central: région de Tuyen-Quan’ [= Vietnam, Tuyên Quang Province] fixed by present lectotype designation.

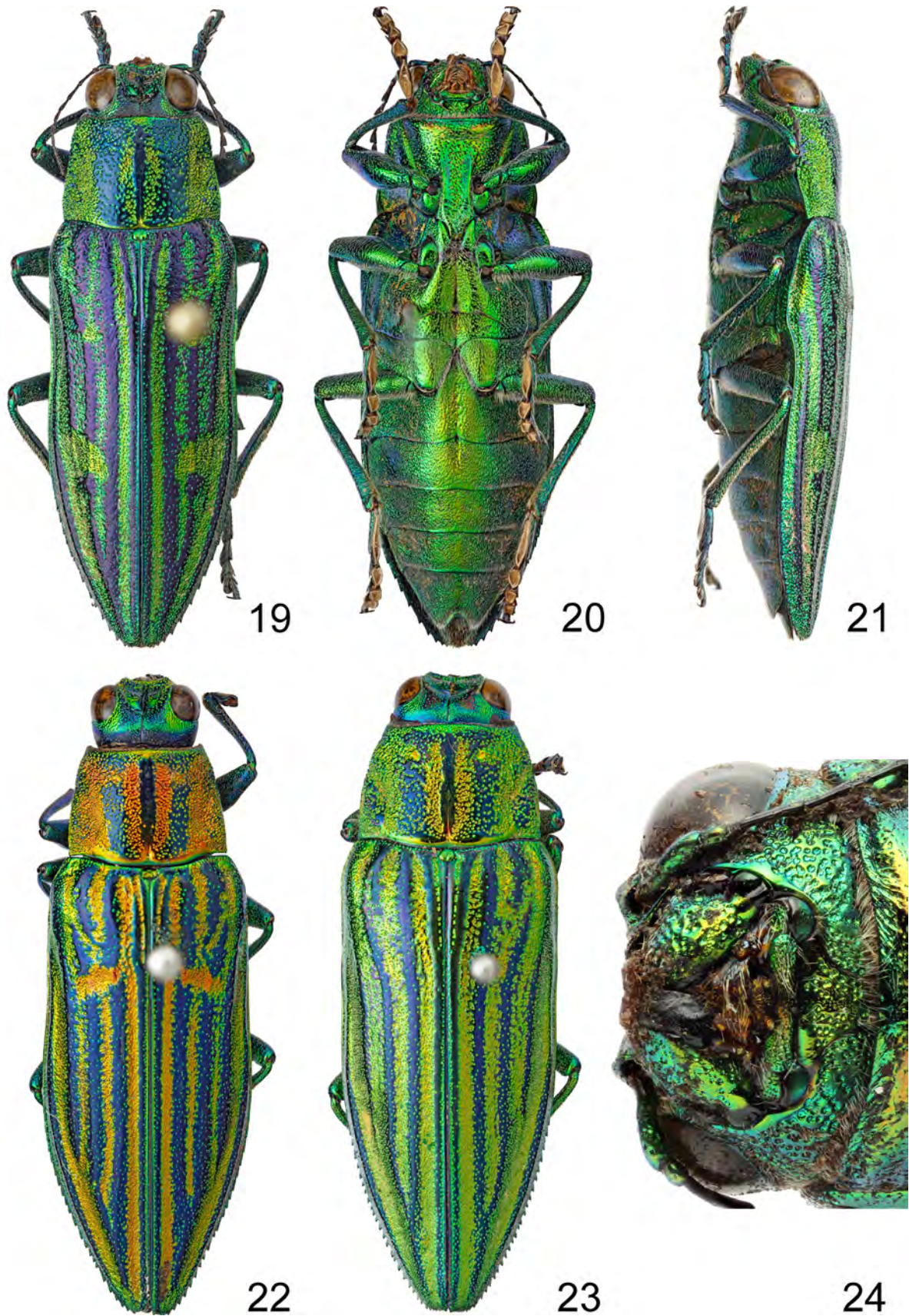
Type material examined. LECTOTYPE (present designation): ♂, ‘Tonkin. Env / de Tuyen-Quan / Weiss 1901 [w, h] // Chrysodema / tonkinea / Kerrem. Type [w, h] // TYPE [r, p]’ (MNHN). PARALECTOTYPES (1 ♂, 4 ♀♀): ♂, ‘MUSEUM PARIS / TONKIN CENTR. / Env. de TUYEN-QUAN / A. WEISS 1901 [w, p] // Été [w, p] // Chrysodema / tonkinea / Kerrem. Type [w, h] // TYPE [r, p]’ (MNHN); ♀, ‘MUSEUM PARIS / TONKIN / PROV. DE TUYEN-QUAN / HAUTE RIVIERE CLAIRE / A. WEISS 1901 [w, p] // Print. -Été [w, p] // Chrysodema / tonkinea / Kerrem. Type [w, h] // TYPE [r, p]’ (MNHN); ♀, ‘MUSEUM PARIS / TONKIN CENTRAL / Région de TUYEN-QUAN / ET DE DONG-CHAU / A. WEISS 1901 [w, p] // avril - juin [w, p] // Chrysodema / tonkinea / Kerrem. Type [w, h] // TYPE [r, p]’ (MNHN); ♀, ‘Tonkin / Mus. Paris [w, h] // C. tonkinea / Kerr. Tonkin [w, h] // tonkinea / Kerrem. Type [w, h]’ (MNHN); ♀, ‘Cochinchine / M: Harmand [w, h] // MUSEUM PARIS / COCHINCHINE / MONT. DE CHAUDOC / HARMAND 1877 [w, p] // Chrysodema / tonkinea / Var. Kerr. / Type [w, h] // différente / voir antennes [w, h] // TYPE [r, p] // 483 / 77 [w, h] // 437 [b, h]’ (MNHN). All specimens were provided with an additional red printed label: ‘LECTOTYPE [or PARALECTOTYPE respectively] [sex] / *Chrysodema (Chrysodema) / tonkinea* / KERREMANS, 1909 / David Frank des. IX. 2017 [date handwritten]’.

Original specimens of unavailable manuscript names. ‘*Chrysodema aurostriata* var. *delacouri*’: ♀, ‘Annam. / Dong Hoi. / January 1927 / Delacour and Lowe Expt. / B.M. 1927–194. [w, p] // Chrysodema / aurostriata Saund. / Var / Delacouri / TYPE Thery [w/r, h/p] // 193215.140 [h on underside of previous label] // Type [r, p, circle]’ (BMNH); ‘*Chrysodema aurostriata* var. *coomani*’ (2 ♀♀): ♀, ‘Hoa-Binh / Tonkin / R. P. de Cooman [w, p] // aurostriata / var Coomani / Thery / Théry det. [w, h/p] // PARA. / TYPE [r, p] / Para- / type [y, p, circle]’ (BMNH); ♀, ‘Hoa Binh / Tonkin [w, h] // aurostriata / var Coomani / Thery / PARATYPE [w/r, h/p] // Chrysodema / tonkinea / Kerr., 1908-9 / Dét. T. LANDER 192001 [w, h/p]’ (MNHN).

Additional material examined (7 ♂♂, 47 ♀♀). VIETNAM: Tonkin, 1 ♂ (MNHN); Tonkin, N. Vietnam, Coll. T. Lander, 3 ♀♀ (MHNG); North Vietnam, viii.1987, 1 ♂ (MHNG); Tonkin, Montes Mauson, 2000–3000 ft., April-Mai, H. Fruhstorfer, 1 ♀ (MFNB); Tonkin, Than-Moi, Juni-Juli, H. Fruhstorfer, 2 ♀♀ (MFNB); Laos [sic!],



FIGURES 13–18. *Chrysodema*, general aspect: 13–15—*C. (C.) aurostriata* Saunders, 1866 (lectotype, ♀ 29.25 mm). 16–18—*C. (C.) vrabeci* sp. nov. (holotype, ♂ 23.75 mm). 13, 16—dorsal view; 14, 17—ventral view; 15, 18—lateral view.



FIGURES 19–24. *Chrysodema*, general aspect: 19–21—*C. (C.) tonkinea* Kerremans, 1909 (lectotype, ♂ 21.00 mm). 22—*C. (C.) aurostriata* ‘coomani Théry’ (BMNH, ♀ 28.25 mm)=*C. (C.) tonkinea*. 23—*C. (C.) aurostriata* ‘delacouri Théry’ (BMNH, ♀ 28.25 mm)=*C. (C.) tonkinea*. 24—*C. (C.) aurostriata* Saunders, 1866 (lectotype, ♀). 19, 22–23—dorsal view; 20—ventral view; 21—lateral view; 24—head.

Than-Moi, Coll. T. Lander, 1 ♀ (MHNG); Cochinchine, 2 ♀♀ (MNHN). **LÀO CAI PROV.:** Chapa, Tonkin, Coll. J. Clermont, 2 ♀♀ (MNHN); N. Vietnam, Prov. Lao Cai, Sapa, Coll. T. Lander, 1 ♀ (MHNG). **HÀ NỘI:** Hanoi, v.1902, (Vauloger), 1 ♂ (MHNG). **HÒA BÌNH PROV.:** Tonkin, Région de Hoa Binh, 1 ♀ (NMPC); Tonkin, Hu Bink, 1 ♀ (MNHN); Tonkin, Hoa Binh, de Cooman, 1 ♀ (MNHN); Tonkin occ., Hoa-Binh, R. P. A. de Cooman, 1919 (8 ♀♀ MNHN; 1 ♀ NMPC; 1 ♀ DFPC); Tonkin, Hoa Binh, A. de Cooman leg., viii.[19]40, 1 ♀ (MHNG); Tonkin, Env. De Hoa-Binh, 1 ♀ (VKSC); Hoa-Binh, viii. 1979, Coll. T. Lander, 1 ♀ (MHNG, specimen figured by Lander (2003: Fig. 139)); Hoo-Binh, Tonkin, (1 ♀ ATMR coll. G. Novak; 1 ♀ MHNG, specimen figured by Lander (2003: Fig. 138)); Laos [sic!], Hoa Binh, Coll. T. Lander, 1 ♀ (MHNG). **VĨNH PHÚC PROV.:** 70 km NW Hanoi, Tam Dao, 21.27°N 105.39°E, 900–1200 m, 9.–19.v.1996, Pacholátko & Dembický leg., 1 ♂ (VKSC). **ĐÔNG NAI PROV.:** Prov. Dong Nai, MaDa Forest, vi.1991, J. Murzin leg., 1 ♀ (NMPC). **LAOS: XAYABULI PROV.:** Sayaboury, v.1965, Laos (Baudon), 1 ♂ (MNCN, coll. A. Cobos); Sayaboury, 28.v.1966, Laos (Baudon), 1 ♀ (MNCN, coll. A. Cobos). **VIỆNTIANE PROV.:** Vientiane, x.[19]66, 1 ♀ (VKSC); Phou Khao Khoay, 4.–17.v.2005, Petr Moravec, 2 ♀♀ (ATMR, coll. R. Novak). **BOLIKHAMSAI PROV.:** Ban Nape-Kaew Nua Pass, 18°22.3'N, 105°09.1'E, alt. 600±100 m, 18.iv.–1.v.1998, E. Jendek & O. Šauša leg., 1 ♂, 1 ♀ (EJBS). **KHAMMOUANE PROV.:** Nakai env., 17°43'N, 105°09'E, alt. 500–600 m, 22.v.–8.vi.2001, E. Jendek & O. Šauša leg., 1 ♂, 2 ♀♀ (EJBS); Nakai env., 17°43'N, 105°09'E, alt. 560 m, 7.–25.v.2002, M. Štěrba leg., 4 ♀♀ (EJBS). **ATTAPEU PROV.:** Bolaven Plateau, 15 km SE of Ban Houaykong, Nong Lom (lake) env., 15°02'N, 106°35'E, alt. 800 m, 18.–30.iv.1999, E. Jendek & O. Šauša leg., 2 ♀♀ (EJBS). **CAMBODIA: SIHANOUKVILLE PROV.:** Kambodcha, Sihanoukville env., 23.iv.–4.v.2007, leg. Andreeva, 2 ♀♀ (ATMR, coll. R. Novak).

Redescription of lectotype. Well preserved ♂ specimen, only right three terminal antennomeres missing. Length 21.00 mm, width 7.00 mm, length/width ratio: 3.00. Body generally metallic green, shiny; convex parts on dorsum blue and impressed ones bright golden-green. Ventral side bright green with moderate golden tint. Legs including tarsi metallic green, ventral pads black with rust-coloured basal part. Labrum, maxillae and labium including palpi yellowish-brown. Scape and pedicel metallic, remaining antennomeres brownish-black.

Pronotum very densely macropunctate, only in central part with broad and sparsely micropunctate interspaces. Macropunctuation laterally gradually coarser and denser. Macropunctures in central part round small and isolated, with small fovea; laterally distinctly deeper impressed and coalescent forming rugose surface. Medial line well visible, sparsely micropunctate, not elevated, basally slightly impressed. Medial impressions shallow but distinct, very densely punctate. Principal impressions moderately deep and not clearly delimited from disc due to coarse punctuation. Lateral impressions very shallow, coarsely punctate. Lateral margin rounded, carinate, distinct in basal 2/3.

Elytra regularly convex with slightly but distinctly convex costae along suture and on intervals 2, 4, 6 and 8; interval 8 much higher than others and moderately convex. Second interval with small oval and very shallow impression in approx. 1/3 length of elytra, laterally reaching to interval 4. Intervals 4 and 6 interrupted by large transverse and oval yet shallow principal impression in apical 1/3 length. Intervals 4 and 6 connected just behind impression. Both impressions with slightly denser punctation than intercostal depressions. All intervals sparsely micropunctate (at magnification 50 ×) and with several macropunctures. Intercostal depressions moderately impressed and densely macropunctate. Punctuation completely irregular, not forming rows or distinct groups. Interspaces mostly as wide as puncture diameter, occasionally up to 3 × as wide as puncture diameter, very sparsely micropunctate, micropunctures hardly visible at magnification 50 ×. Each macropuncture bearing short adherent white seta, but impressions do not appear pilose. Epipleura in basal 1/4 broad, strongly shiny and sparsely punctate but rugose, then abruptly constricted with acutely angled inward tooth in constriction and then gradually narrowing apically; entire narrow part quite densely punctate, each puncture bearing long erect white seta.

Fore and mid femora in central part strongly shiny, sparsely punctate; hind femora distinctly more densely punctate. Each puncture bearing seta, setation particularly conspicuous on lower side of hind femora.

Ventral side of body (Fig. 20) overall very densely and moderately coarsely punctate, only central part with moderately large shiny impunctate areas. Entire lateral sides of abdominal ventrites I–V very densely and almost uniformly punctate, without obvious shiny impunctate areas (Fig. 21).

Aedeagus length: 5.78 mm, width: 0.89 mm, length/width ratio: 6.49. Parameres cymbiform, apices narrow and rounded. Penis narrow, strongly elongate, subparallel-sided, in apical 1/4 strongly narrowing and pointed, ventral side moderately deeply impressed with weak striae, lateral sides with deep canaliculus, dorsal margin slightly broader than ventral one (Fig. 76).

Variation. Body ♂♂ (n=7) length: 18.25–22.50 mm, width: 6.25–7.25 mm, length/width ratio: (2.58)2.89–3.11; ♀♀ (n=44): length: 18.00–29.50 mm, width: 6.00–9.75 mm, length/width ratio: 2.58–3.13.

Dorsal colouration quite constant, always with blue costae on elytra; intercostal depressions from bright green to green-golden (N Vietnam) or copper-golden (rarely N Vietnam, common in S Laos and S Vietnam). Ventral side of same colour as costae showing similar variability. Impressions on elytra of variable size but usually present; one of studied specimens had no impression, one had only basal one, and two only posterolateral one. Basal impression from small and rounded on second costa to large transverse expanded laterally to first and fourth costae and entirely interrupting intercostal depressions 2 and 4. Convexity of costae and density of punctation variable in northern-southern gradient. Populations from N Vietnam with coarsely and very densely punctate lateral sides of pronotum and also elytral costae obviously convex separating individual intercostal depressions. While southern populations have distinctly sparser punctation of pronotum and elytra and distinctly lower costae, particularly in basal half thus intercostal depressions not so clearly separated.

Aedeagus (n=2) length: 5.78–5.83 mm, width 0.89–0.94 mm, length/width ratio: 6.20–6.49.

Female genitalia. Ventricle VII coarsely punctate, apex narrow and subacuminate. Tergite VIII coarsely punctate with moderately sized punctures, strongly narrowing apically; apex 0.3 × as wide as base, not bilobed, only indistinctly notched (Fig. 93). Ventricle VIII subpentagonal, subparallel-sided, apex narrowing and rounded (Fig. 92).

Differential diagnosis. For comparative characters see Table 2 on page 25.

Distribution. Cambodia, Laos and Vietnam.

Remarks. *Chrysodema (C.) tonkinea* was synonymized with *C. (C.) aurostriata* by Théry (1927) and Lander (2003). In our opinion it is a distinct taxon and can be easily separated by the colouration of mouthparts (black vs. yellow). Therefore we restore its species status.

We found three specimens labelled as ‘types’ of two varieties, one specimen of ‘*delacouri*’ (Fig. 23) and two specimens of ‘*coomani*’ (Fig. 22) of *C. aurostriata* by Théry. Both are unavailable manuscript names and belong to the northern morphotype differing only in absence of impressions on elytra (no impression in ‘*delacouri*’ and only basal one in ‘*coomani*’). Remaining characters are identical to other specimens from N Vietnam and are fully within regional variability of *C. (C.) tonkinea*, therefore there is no need to validate these names.

Lander (2003) recorded *C. (C.) aurostriata* from Cambodia, Laos, Thailand and Vietnam. Records from southern Cambodia, Laos and Vietnam certainly belong to *C. (C.) tonkinea* and we have examined the original material. We did not find authentically identified specimens from Cambodia recorded by Lander, however we studied two specimens from Cambodia, which perfectly agree with the paralectotype from Cochinchine.

***Chrysodema (Chrysodema) vrabeci* sp. nov.**

(Figs 16–18, 77, 94–95)

Chrysodema aurostriata [misidentifications]: Akiyama & Ohmomo (2000): Pl. 44, Fig. 465; Lander (2003): 83 (colour Figs 136–137).

Type locality. Thailand, Chiang Rai Province, Wiang Pa Pao.

Type material examined. HOLOTYPE: ♂, ‘N.THAILAND Chiang Rai / Wiang Pa Pao, iii 1991 / Native Collector. [w, p] // *Chrysodema / aurostriata / Saund.*, 1866 / Dét. T. LANDER †92001 [w, h/p]’ (MHNG). PARATYPES (1 ♂, 27 ♀♀): **THAILAND: NAN PROV.:** 11 ♀♀, ‘THAILAND, Nan prov., / Ban Huai Kon env., / 19°35′34″N; 101°05′06″E / 27.v.-10.vi.2002 / M.Obořil lgt. [w, p]’ (4 ♀♀ DFPC, 2 ♀♀ EJBS, 9 ♀♀ MOOC, 1 ♀ VKSC, 1 ♀ SVVC). **CHIANG MAI PROV.:** 1 ♀ ‘THAILAND / Chiang Mai / 5. 07. 1992 [w, p] // *Chrysodema / aurostriata Saund.* / det. S. Gottwald 2003 [w, p]’ (SGBG); 1 ♀, ‘SAMOENG THAÏL. / CHIANG MAÏ / 26.V.88 / C. G. MINET [w, h/p] // *Chrysodema ♀ / aurostriata / SAUNDERS*, 1866 / Det. K. AKIYAMA 1989 [w, h/p]’ (MHNG); 1 ♀, ‘THAILAND / Chiang Mai / Maetaeng / 20. V. 1988 / Chamong P. Leg. [w, p] // [dorsal side]: comparé / au Type [r, p]; [ventral side]: BMNH Londres [r, h] // [dorsal side]: *Chrysodema / aurostriata / Saunders*, 1866 / Dét. T. LANDER 1990 [w, h/p]; [ventral side]: comp / Type / B.M.N.H. / 7.1.99 [w, h]’ (MHNG); 1 ♀, ‘T - Chiangmai / Mae Taeng / 23. Jun. 1990 [w, h] // *Chrysodema (s. str.) / tonkinea KERR.* / det. G. NOVAK 1990 [w, h/p] // *Chrysodema 1866 / aurostriata Saund.*, ♀ / det. G. Novak 2005 [w, p]’ (ATMR, coll. R. Novak; 1 ♀, ‘T - Sansai / 16. Jun. 1990 / leg. Minetti/Ferrero [w, h] // *Chrysodema (s. str.) / tonkinea KERR.* / det. G. NOVAK 1990 [w, h/p] // *Chrysodema 1866 / aurostriata Saund.*, / det. G. Novak 2005 [w, p]’ (ATMR, coll. R. Novak; 1 ♀, ‘THAILAND / Chiang Mai / 12. 06. 1991 / coll. Steinke [w, p/h] // *Chrysodema 1866 / aurostriata Saund.*, / det. G. Novak 2005 [w, p]’ (ATMR, coll. R. Novak. **LAOS:** 1 ♀, ‘Laos / 1963 / A. Baudon [w, p] // ex coll. S. Bílý / National Museum / Prague, Czech

Republic [w, p] // *Chrysodema* / s. str. / *aurostriata* Saund. / A. Baudon det. [b, h/p]' (NMPC). 1 ♀, 'Laos / Nhat Oai / 15. VI. 17 [w, h; specimen collected by R. V. de Salvaza] // *Chrysodema* / *aurostriata* Saund. / Trans. Lond. (3) V. 1867 / p. 302, pl. 21. fig. 8 [w, h]' (MNHN). **VIENTIANE PROV.:** 1 ♀ (figured in LANDER (2003: Fig. 136) as *C. aurostriata*), 'Vientiane / LAOS / VIII.1982 / Coll. T. LANDER [w, h/p] // *Chrysodema* / *aurostriata* / Saund / Dét. T. LANDER 192000 [w, h/p]' (MHNG). **BOKĚO PROV.:** 1 ♀, 'LAOS / Houei Sai [= Huay Xai] / Coll. T. LANDER [w, h/p] // *Chrysodema* / *aurostriata* / Saund / Dét. T. LANDER 192000 [w, h/p]' (MHNG). **WITHOUT LOCALITY DATA:** 1 ♂, '1.4.2001 (1) / *C. aurostriata* / 4h KOH 75°C / Dét. T. LANDER 19 [w, h/p] // *Chrysodema* / *aurostriata* / Saund., 1866 / Dét. T. LANDER 192001 [w, h/p]' (MHNG). All specimens were provided with an additional red printed label: 'HOLOTYPE [or PARATYPE respectively] [sex] / *Chrysodema* (*Chrysodema*) / *vrabeci* sp. nov. / David Frank & / Lukáš Sekerka det. I. 2019 [date handwritten]'.

Description of holotype. Well preserved ♂ specimen, only terminal tarsomeres on right mid and hind legs missing. Length 23.75 mm, width 7.75 mm, length/width ratio: 3.06. Body generally metallic green, shiny; convex parts on dorsum dark blue and impressed ones bright purple-golden. Ventral side green with strong copper tint. Legs including tarsi metallic green, ventral pads black with rust-coloured basal part. Labrum and maxillar palpi dark brown; maxillae and labium including palpi yellowish-brown. Scape and pedicel metallic, remaining antennomeres brownish-black.

Pronotum moderately densely macropunctate, in central part with broad and sparsely micropunctate interspaces. Macropunctuation laterally gradually coarser, deeper and somewhat denser but macropunctures always isolated with shiny micropunctate areas among them. Medial line more or less visible, delimited as sparsely micropunctate, not elevated. Medial impressions absent, area usually occupied by impressions moderately densely punctate. Principal impressions moderately deep and not clearly delimited from disc. Lateral impressions absent, area coarsely punctate. Lateral margin rounded, carinate, distinct in basal 1/2.

Elytra regularly convex with intervals 2, 4, 6 and 8 flat in basal 2/3 and slightly convex (costate) in apical 1/3; intervals 4 and 6 not connected, widely separated by impressed and densely punctate area; interval 8 somewhat higher than others. Each elytron with two weak oval impressions: one, principal, interrupting interval 3 and covering area between 2nd and 4th interval in basal 1/4 length and the other in 2/3 length of elytron situated between 4th and 8th interval and interrupting interval 6; interval 6 continuing for a short distance as small isolated costa. Both impressions with slightly denser punctation than intervals. All intervals sparsely micropunctate (at magnification 50 ×) and with several macropunctures. Areas between each interval moderately impressed and densely macropunctate. Punctuation completely irregular, not forming rows or distinct groups. Interspaces 1–5 × as wide as puncture diameter, very sparsely micropunctate, micropunctures hardly visible at magnification 50 ×. Each macropuncture bearing short adherent white seta, but impressions do not appear pilose. Epipleura in basal 1/4 broad, strongly shiny and sparsely punctate but rugose, then abruptly constricted with acutely angled inward tooth in constriction and then gradually narrowing apically; entire narrow part sparsely punctate, each puncture bearing long erect white seta.

Fore and mid femora in central part strongly shiny, sparsely punctate; hind femora distinctly more densely punctate. Each puncture bearing seta, setation particularly conspicuous on lower side of hind femora.

Ventral side of body (Fig. 17) overall densely and coarsely punctate, only central part with large shiny impunctate areas. Entire lateral sides of abdominal ventrites I–V densely and almost uniformly punctate but with distinct shiny impunctate areas, particularly in posterior half (Fig. 18).

Aedeagus length: 6.00 mm, width: 1.00 mm, length/width ratio: 6.00. Parameres cymbiform, apices narrow and rounded. Penis moderately broad, elongate, gradually narrowing from base to nearly apex, only apical 1/20 strongly narrowing and rounded, ventral side deeply impressed with strong striae, lateral sides with deep canaliculus, dorsal margin distinctly broader than ventral one (Fig. 77).

Variation. Body ♂♂ (n=2) length: 23.75–24.75 mm, width: 7.75–8.50 mm, length/width ratio: 2.90–3.06; ♀♀ (n=24): length: 20.50–30.00 mm, width: 7.00–10.50 mm, length/width ratio: 2.85–3.14. Six specimens with very similar colouration as in holotype. Remaining specimens green with strong copper tint, a few specimens mostly copper. Structure of pronotum constant, only a few specimens with slightly denser and coarser punctuation. Structure of elytra constant, impressions slightly vary in size but always present, though hardly visible in predominantly copper-coloured specimens. Punctuation of elytra in larger specimens distinctly denser. Intervals from almost completely flat to more or less convex in apical 1/2. Aedeagus (n=2) length: 5.78–5.83 mm, width 0.89–0.94 mm, length/width ratio: 6.20–6.49.

Female genitalia. Ventrite VII coarsely punctate, apex narrow but subrounded. Tergite VIII coarsely punctate

with moderately sized punctures and moderately narrowing apically; apex $0.6 \times$ as wide as base and distinctly bilobed with deep emargination (Fig. 95). Ventrite VIII subtriangular due to gradually narrowing sides, apex broad and rounded but not markedly narrowing (Fig. 94).

Differential diagnosis. For comparative characters see Table 2.

Etymology. This species is named after our friend Svatoslav Vrabec (Vrchlabí, Czech Republic), entomologist and photographer, who provided most of the photographs in this revision.

Distribution. Laos (Bokèo, Vientianne) and Thailand (Chiang Mai, Chiang Rai, Nan).

Remarks. Records of *C. (C.) aurostriata* from Thailand and at least part of those from Laos published by Lander (2003) belong to this species. Lander (2003: 83, Figs 136–137) figured two specimens. We located only the one on Fig. 136, which is designated as paratype. Depository of the other one (Fig. 137) is unknown to us nevertheless, we are convinced that it also belongs to *C. (C.) vrabeci* sp. nov. We have examined only two male specimens of *C. (C.) vrabeci* sp. nov., one is designated as holotype and the other has no locality data and was dissected by Lander but the aedeagus is not with the specimen. However, it perfectly agrees with the holotype therefore we included it among paratypes.

TABLE 2. Diagnostic characters of the *Chrysodema (C.) aurostriata* species-group.

	<i>C. (C.) aurostriata</i> Saunders, 1866 Figs 13–15, 24, 90–91	<i>C. (C.) tonkinea</i> Kerremans, 1909 Figs 19–23, 76, 92–93	<i>C. (C.) vrabeci</i> sp. nov. Figs 16–18, 77, 94–95
colouration of mouthparts	labrum, maxillae and labium including palpi pale brown	labrum, maxillae and labium including palpi yellow	labrum and maxillar palpi brown to black; maxillae and labium including palpi yellow
Female tergite VIII	apex evidently more than half of width of base and weakly emarginated, not obviously bilobed (Fig. 91)	apex $0.3 \times$ as wide as base and not bilobed, only indistinctly notched (Fig. 93)	apex $0.6 \times$ as wide as base and distinctly bilobed, with deep emargination (Fig. 95)
Female ventrite VIII	broadly subpentagonal, parallel-sided, apex narrowing and rounded (Fig. 90)	subpentagonal, subparallel-sided, apex narrowing and rounded (Fig. 92)	subtriangular with narrowing sides, apex broad and rounded but not markedly narrowing (Fig. 94)
Male genitalia	no male specimen available	penis narrow, strongly elongate, subparallel-sided, in apical 1/4 strongly narrowing and pointed (Fig. 76)	penis moderately broad, elongate, gradually narrowing from base to nearly apex, only apical 1/20 strongly narrowing and rounded (Fig. 77)

Chrysodema aeneoviolacea species-group

Key to the *Chrysodema (C.) aeneoviolacea* species-group

- 1 Dorsum dark bronze brown. 2
- Dorsum metallic green. 4
- 2 Frons densely pubescent with long setae. Pronotum coarsely and densely punctate, principal impressions hardly visible, narrow and very shallow. Philippines. Figs 34–36, 80. *C. (C.) sibuyanica* Fisher, 1924
- Frons sparsely pubescent with short semi-adherent setae. Pronotum coarsely and moderately sparsely punctate, principal impressions obvious, moderately impressed. Species from Moluccas. 3
- 3 Dorsum strongly shiny, costae on elytra polished, not obviously micropunctate. Dorsum usually bronze-brown, pronotum often with slight violet tinge. Indonesia, Kai Isls., Larat Is. Figs 25–30, 78. *C. (C.) aeneoviolacea* Deyrolle, 1864
- Dorsum moderately shiny, costae very distinctly and densely micropunctate. Elytra distinctly bicoloured, costae in dark tones of turquoise or blue with golden intercostal depressions. Indonesia, Haruku Is. Figs 31–33, 79. *C. (C.) dany* sp. nov.
- 4 Third costa shortened, reaching approximately to midlength of elytron, sometimes it continues as low fold but always densely punctate, not smooth. Indonesia, Ambon Is. Figs 37–39. *C. (C.) excellens* Théry, 1923
- Third costa long, reaching distinctly at least to apical third, smooth and strongly shiny along entire length. 5
- 5 Principal impressions on pronotum regular, large and cup shaped, entire concavity densely covered with small punctures. Indonesia, Ambon and Seram islands. Figs 43–48, 81. *C. (C.) wallacei* Deyrolle, 1864
- Principal impressions on pronotum never cup shaped, moderately deep and irregularly circular to oval with stripe of dense and small punctures internally. Indonesia, Gorong and Seram islands. Figs 40–42. *C. (C.) mniszecchi* Deyrolle, 1864

***Chrysodema (Chrysodema) aeneoviolacea* Deyrolle, 1864 stat. rev.**

(Figs 25–30, 78)

Chrysodema Aeneo-violacea Deyrolle (1864): 13 (key), 16 (original description); Saunders (1871): 14 (catalogue); Kerremans (1892): 37 (catalogue); Kerremans (1903): 75 (catalogue).

Chalcophora aeneoviolacea: Gemminger & Harold (1869): 1356 (catalogue).

Chrysodema (Chrysodema) aeneoviolacea: Kerremans (1909): 533 (revision, as synonym of *C. (C.) Mniszechii* [sic!]); Obenberger (1926): 132 (catalogue, as subsp. of *C. (C.) Mniszechii* [sic!]); Lander (2003): 36 (revision, as synonym of *C. (C.) mniszechii*); Bellamy (2008): 527 (listed as synonym of *C. (C.) mniszechii*), 534 (catalogue, in synonymy of *C. (C.) mniszechii*).

Chrysodema elongata Kerremans (1900c): 62 (original description); Kerremans (1903): 74 (catalogue); Akiyama & Ohmomo (2000): Pl. 44, Figs. 464-1, 464-2 (iconography, misidentification=*C. coelestina*), **syn. nov.**

Chrysodema (Chrysodema) elongata: Kerremans (1909): 514 (key), 521 (redescription); Obenberger (1926): 131 (catalogue); Lander (2003): 14 (key), 33 (redescription), 78 (colour Figs 54–55); Bellamy (2008): 530 (catalogue).

Chrysodema keyensis Théry (1923): 224 (original description), **syn. nov.**

Chrysodema (Chrysodema) keyensis: Obenberger (1926): 132 (catalogue); Lander (2003): 33 (revision, as syn. of *C. (C.) elongata*); Bellamy (2008): 530 (catalogue, in synonymy of *C. (C.) elongata*), 533 (listed as synonym of *C. (C.) elongata*).

Type localities. *C. aeneoviolacea*: ‘Ile Key’; *C. elongata*: ‘Iles Key’; *C. keyensis*: ‘Ile Key’ [= Indonesia, Maluku Province, Kei Islands].

Type material examined. *Chrysodema aeneoviolacea* HOLOTYPE (by monotypy): ♀, ‘I. Key [w, h] // Ex-Musæo / Mniszech [w, p] // MUSÉUM PARIS / 1952 / COLL. R. OBERTHUR [y, p] // Aeneoviolacea / HDeyr. [w, h]’, (MNHN). Specimen was provided with an additional red printed label: ‘HOLOTYPE (by monopyty) / *Chrysodema / aeneoviolacea* ♀ / DEYROLLE, 1864 / David Frank labelled IX. 2017 [date handwritten]’.

Chrysodema elongata: SYNTYPES (2 ♀♀): ♀, ‘Kei Toeal / I.-III.96. / H. C. Webster [w, p] // *Chrysodema / elongata* / Kerr. type [w, h] // MUSÉUM PARIS / 1952 / COLL. R. OBERTHUR [y, p] // Type [r, p]’, (MNHN); ♀ (figured by LANDER (2003: Fig. 54), ‘Key-Inseln / Tual [w, p] // Kerremans. / 1903–59. // *elongata* / Kerr. Type [w, h] // Type [r, p, circle]’, (BMNH). Both specimens were provided with an additional red printed label: ‘SYNTYPE ♀ / *Chrysodema / elongata* / KERREMANS, 1900 / David Frank labelled IX. 2017 [date handwritten]’ and also white printed label: ‘*Chrysodema (Chrysodema) / aeneoviolacea* ♀ / DEYROLLE, 1864 / David Frank det. IX. 2017 [date handwritten]’.

Chrysodema keyensis: HOLOTYPE (by monotypy): ♂, ‘I. Key / Le Moults [w, h] // TYPE [r, p] // Coll. THERY [w, p] // C. Keyensis / Thery / Type [w, h]’ (MNHN). Specimen was provided with an additional red printed label: ‘HOLOTYPE (by monopyty) / *Chrysodema / keyensis* ♂ / THÉRY, 1923 / David Frank labelled IX. 2017 [date handwritten]’ and also white printed label: ‘*Chrysodema (Chrysodema) / aeneoviolacea* ♂ / DEYROLLE, 1864 / David Frank det. IX. 2017 [date handwritten]’.

Additional material examined (9 ♂♂, 22 ♀♀). **INDONESIA: MALUKU PROV.: Kai Islands:** Key Ins. (2 ♀♀ NMPC; 1 ♀ NHMB; 1 ♀ MFNB); Key Ins., H. Kühn, 1901, 1 ♀ (MFNB); Key Ins., Semper S., 1 ♂ (MHNG); Key Insel, 1 ♀ (MHNG, specimen figured by Lander (2003: Fig. 55) as *C. elongata*); Key, Koll. Dr. A. Frh. v. Hoschek, 3 ♀♀ (IRSN); Kai, 1 ♂ (MHNG). **Kai Besar Island:** Kai Besar Isl., xii.2006, coll. Müller, 1 ♀ (ATMR, coll. R. Novak). **Kai Dullah Island:** Tual, C. Ribbe, 1884 (1 ♀ NHMB; 1 ♀ IRSN); Kei, Toeal, i.–iii.[18]96, H. C. Webster (1 ♂ MHNG; 2 ♀♀ MFNB). **Tanimbar Islands:** Tanimbar Island, iv.2004, 1 ♀ (SGBG). **Larat Island:** Larat Isl., 0–50 m, v.2007 (2 ♀♀ NMPC; 1 ♂, 1 ♀ DFPC; 1 ♂ VKSC; 3 ♂♂, 3 ♀♀ ATMR, coll. R. Novak). **Lakor Island [sic! see remarks]:** Lakor Isl., iv.2005, 1 ♂ (SGBG). **WEST PAPUAL PROV.: Salawati Island:** Salawaty, 1 ♀, Schultz (MFNB, published by Kerremans, see remarks).

Redescription of holotype. Well preserved ♀ specimen, missing right fore leg, mid right tarsus, and terminal antennomeres. Length 35.00 mm, width 12.00 mm, length/width ratio: 2.92.

Body dark bronze metallic copper. Dorsum bicolorous, head and pronotum nearly black with violet-blue reflections; elytra bronze-copper. Ventral side dark with purple tint, centrally also with blue reflections. Mouthparts yellow (except of mandibulae), antennae black, only first two antennomeres metallic. Ventral pads on all tarsomeres dorsally black, only their extreme base dark brown.

Head moderately densely punctate, punctures foveolate, each bearing short seta, thus frons sparsely pubescent. Vertex more densely punctate, punctures bearing adherent setae.

Pronotum moderately densely macropunctate, shiny parts very sparsely micropunctate and weakly micro-re-

ticulate. Micropunctures more or less visible at magnification (50 ×). Surface except of impressions very smooth and shiny. Macropunctuation laterally gradually coarser and denser. Each macropuncture bearing moderately long white adherent seta. Medial line well visible, sparsely micropunctate, appears slightly elevated. Medial impressions shallow, but well visible, rather sparsely punctate. Principal impressions moderately large, oval, and moderately deeply impressed; internally with stripe of small and moderately dense punctures. Lateral impressions shallow, with a few shallowly impressed punctures. Lateral margin carinate in basal 2/3, then widening and flattened, reaching to approx. 3/4 length of pronotum.

Elytra regularly convex with distinctly elevated rounded and very broad costae along suture and on intervals 2, 4, 6 and 8. Interval 6 shortened, reaching to 2/3 length of elytra, narrowly separated from interval 4. Costae very finely and sparsely micropunctate (at magnification 50 ×) and each with a few additional confusedly dispersed macropunctures. Intercostal depressions deep and moderately densely macropunctate. Punctuation completely irregular, not forming rows or groups of punctures. Each macropuncture bearing short adherent white seta, but impressions do not appear pilose. Interspaces 2–8 × as wide as puncture diameter but mostly 2–3 × as wide as puncture diameter.

Epipleura in basal 1/4 moderately broad, densely punctate, then moderately and continuously constricted and then gradually narrowing apically; punctures becoming finer and vanishing towards apex. Each puncture bearing long erect white seta.

Fore and mid femora in central part strongly shiny, sparsely punctate; hind femora distinctly more densely punctate. Each puncture bearing seta, setation particularly conspicuous on lower side of hind femora.

Ventral side of body (Fig. 26) overall moderately densely punctate, punctures mid-sized, only central part sparsely punctate with large shiny impunctate areas. Entire lateral sides of all abdominal ventrites moderately dense and almost uniformly punctate, only towards apical margins punctuation sparser (Fig. 27).

Variation. Body ♂♂ (n=5) length: 25.50–30.00 mm, width: 8.25–10.25 mm, length/width ratio: 2.85–3.09; ♀♀ (n=17): length: (27)31.00–36.25(38) mm, width: (9.00)10.25–13.00 mm, length/width ratio: (2.76)2.82–3.02. Moderately variable species. Elytra often black with steel metallic tint thus dorsum not markedly bicolorous. General structure of elytra constant but punctuation can be slightly sparser or denser. Structure of pronotum more variable, medial line from almost flat to slightly but distinctly convex; medial impression shallow, sometimes almost not impressed; principal impressions often only elongate to linear and present only as more or less impressed row amongst dense punctuation.

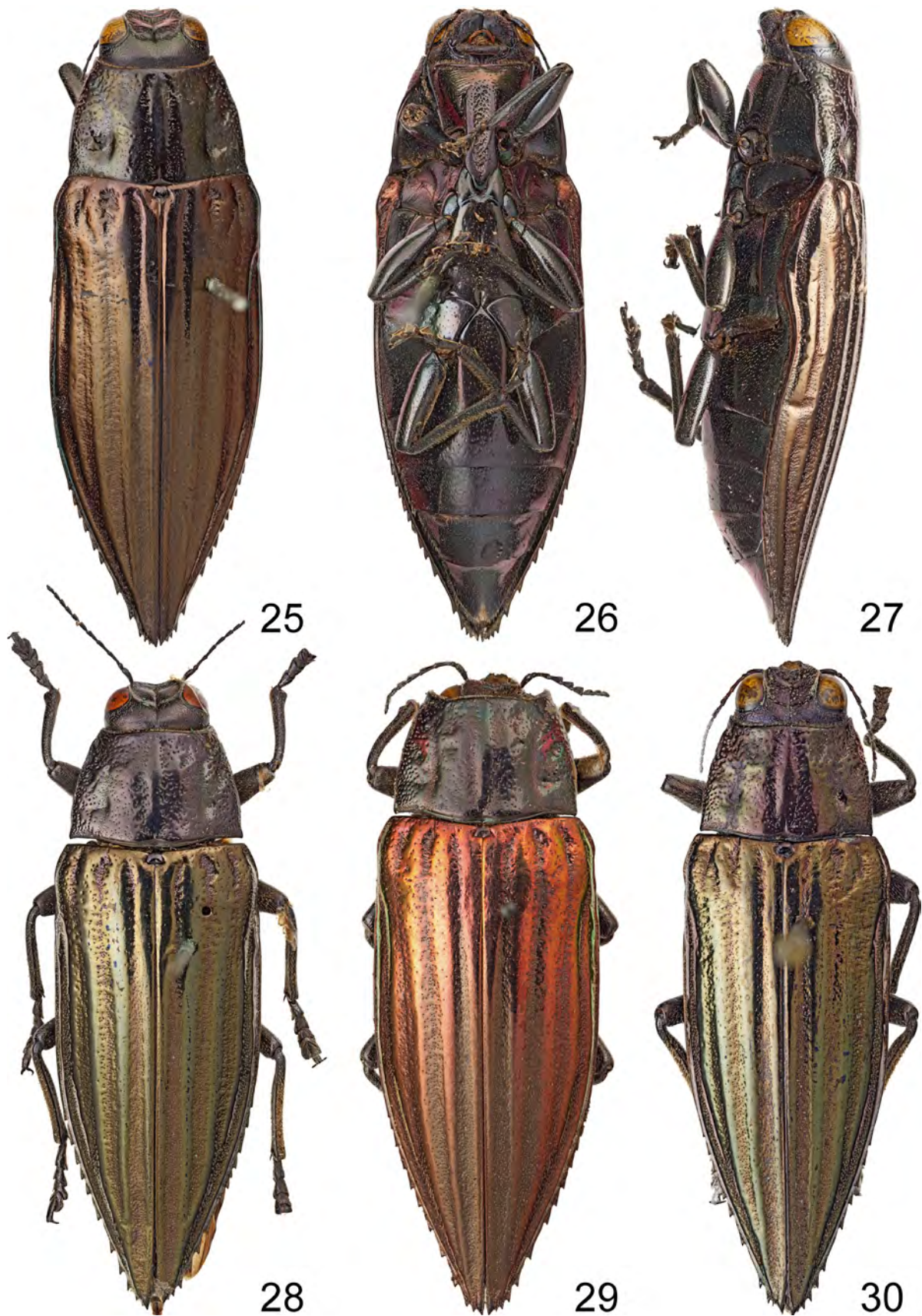
Aedeagus (n=3) length: 7.00–7.67 mm, width 1.56–1.61 mm, length/width ratio: 4.49–4.77. Parameres cymbiform, apices narrow and rounded. Penis narrow, elongate, subparallel-sided, ventral side only slightly impressed, lateral sides with deep canaliculus, which has both margins equal (Fig. 78).

Differential diagnosis. See diagnosis under *C. (C.) dany* sp. nov. on page 31.

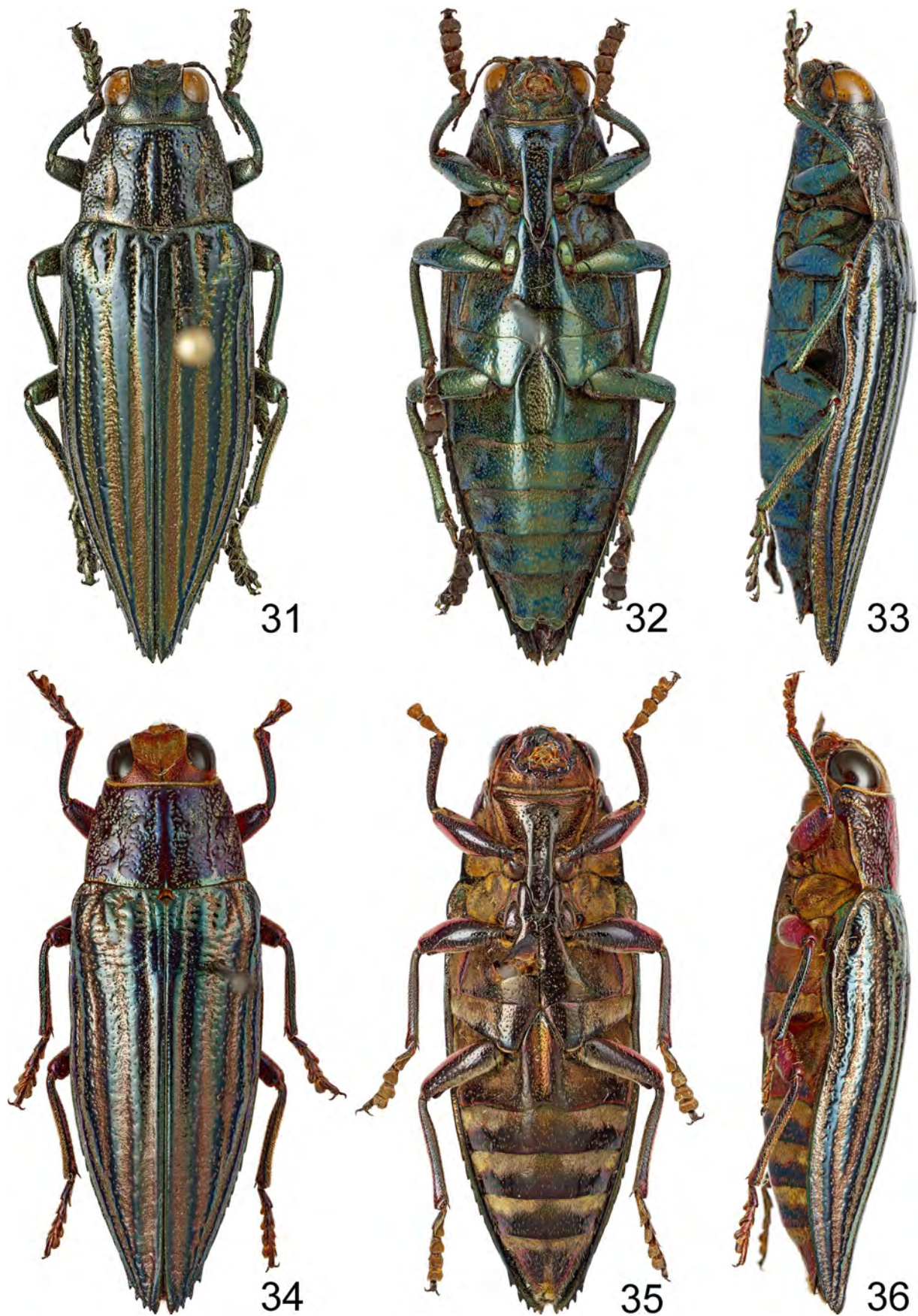
Distribution. Indonesia, Maluku Prov., Kai Islands; Larat Island (Tanimbar Islands); and ? Salawati Island.

Remarks. Kerremans (1900c) described *C. elongata* (Figs 28–29) from the Kai Islands and stated it is similar to some species of *Paracupta*. Kerremans (1909) synonymized *C. aeneoviolacea* with *C. mniszehi* as he supposed it is only a colour form of it based on authentically identified specimen by Deyrolle from Salawati Island, however, he never studied the type. He also classified his *C. elongata* in a completely different group of species than *C. mniszehi*. Later on, Théry (1923) described *C. keyensis* (Fig. 30) also from the Kai Islands based on a single specimen and compared it to *C. mniszehi* and *C. wallacei*. Finally, Lander (2003) synonymized *C. (C.) keyensis* with *C. (C.) elongata* based on type material and again synonymized *C. (C.) aeneoviolacea* with *C. (C.) mniszehi* but he did not study any type material of this group. We have located and studied type specimens of all four above mentioned taxa and found that *C. (C.) aeneoviolacea* is the same as *C. (C.) elongata* and *C. (C.) keyensis*. As it is the oldest available name, the two latter nominal taxa are synonymized with it and species status of *C. (C.) aeneoviolacea* is restored.

We also examined the specimen from Salawati Island deposited in MFNB and reported by Kerremans (1909: 534). The specimen itself was heavily covered with some fat or wax soaked into cuticle and thus looked very strange as most of the relevant morphological characters were hardly visible. We have tried to clean the specimen in Tetrachloroethylene, which removed part of the fat/wax thus we could see its intensively shiny elytra and pronotum, relatively sparse punctuation in contrast to other species of this group, and rather more acuminate shape which are characters typical for *C. (C.) aeneoviolacea*. We cannot be sure that the specimen was truly collected on Salawati Island, on the other hand its occurrence there is possible but should be verified with new material.



FIGURES 25–30. *Chrysodema*, general aspect: 25–27—*C. (C.) aeneoviolacea* Deyrolle, 1864 (holotype, ♀ 34.50 mm). 28—*C. (C.) elongata* Kerremans, 1900 (syntype (BMNH), ♀ 33.50 mm)=*C. (C.) aeneoviolacea*. 29—*C. (C.) elongata* Kerremans, 1900 (syntype (MNHN), ♀)=*C. (C.) aeneoviolacea*. 30—*C. (C.) keyensis* Théry, 1923 (holotype (MNHN), ♂ 35.00 mm)=*C. (C.) aeneoviolacea*. 25, 28–30—dorsal view; 26—ventral view; 27—lateral view.



FIGURES 31–36. *Chrysodema*, general aspect: 31–33—*C. (C.) dany* sp. nov. (holotype, ♂ 28.75 mm). 34–36—*C. (C.) sibuyanica* Fisher, 1924 (holotype, ♀ 30.00 mm). 31, 34—dorsal view; 32, 35—ventral view; 33, 36—lateral view.

We examined a series of specimens from Larat Island, which fall within the variability of *C. (C.) aeneoviolacea* not differing in any significant character, therefore the distribution is extended also to Larat Island (Tanimbar Islands). The species was until now known only from Kai Islands. We also studied a single specimen labelled as from Tanimbar Islands, which could have been collected also on Larat, which belongs to this archipelago. Finally, we have examined one specimen from the Lakor Island, which certainly belongs to this species but was very unlikely collected on Lakor as it is a part of the Leti Archipelago situated NE of Timor. The distribution of *C. (C.) aeneoviolacea* in Kai and Larat islands is not very unusual and it might be spread by sea currents (see Gordon 2005, Hall 2009, Frank & Sekerka 2016: 717).

Chrysodema (Chrysodema) dany sp. nov.

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(Figs 31–33, 79)

Type locality. Indonesia, Maluku Province, Haruku Island.

Type material. HOLOTYPE: ♂, ‘INDONESIA, / Maluku Isls, / HARUKU Isl., / xii. 1993 [w, h]’ (NMPC, ex coll. VKSC). PARATYPES (5 ♂♂, 3 ♀♀): 4 ♂♂, 2 ♀♀, same data as holotype (3 ♂♂, 1 ♀ VKSC, 1 ♂, 1 ♀ DFPC); 1 ♀, ‘INDONESIA / HARUKU isl. / xii. 1993 [w, h] // *Chrysodema / mniszecchi / v. aeneoviolacea / Dét. T. LANDER 192007 [w, h/p]*’ (EJBS); 1 ♂, ‘Indonesia / Ceram is. 12/1993 [w, p] // *Chrysodema / mniszecchi / aeneoviolacea Deyr. / det. S. Gottwald 2002 [w, h/p]*’ (SGBG). All specimens were provided with an additional red printed label: ‘HOLOTYPE [or PARATYPE respectively] [sex] / *Chrysodema (Chrysodema) / dany sp. nov. / David Frank & Lukáš Sekerka det. I. 2019 [date handwritten]*’.

Description of holotype. Well preserved ♂ specimen, left middle tarsus missing as well as left antennomeres IX–XI and right antennomeres VIII–XI. Length 28.75 mm, width 9.50 mm, length/width ratio: 3.03.

Body very dark metallic black-blue with golden-bronze punctate areas, elytral costae gradually more bluish towards apex of elytra. Ventral pads on all tarsomeres dorsally black, only their extreme base dark brown.

Head sparsely punctate, punctures foveolate, each bearing short seta, thus frons sparsely pubescent. Vertex more densely punctate, punctures bearing adherent setae.

Pronotum moderately densely macropunctate, shiny parts moderately densely micropunctate and weakly micro-reticulate. Central part of disc with shiny areas. Macropunctuation laterally gradually coarser and denser. Each macropuncture bearing moderately long white adherent seta. Medial line well visible, sparsely micropunctate, more or less elevated along entire length. Medial impressions distinct but shallow. Principal impressions small, elongate, and moderately deeply impressed; their punctuation internally forming line of small and very dense punctures. Lateral impressions shallow, barely marked, with several shallowly impressed punctures. Lateral margin carinate in basal 2/3, then widening and flattened reaching to approx. 3/4 length of pronotum.

Elytra regularly convex with distinctly elevated rounded and broad costae along suture and on intervals 2, 4, 6 and 8. Interval 6 shortened, reaching almost to 4/5 length and almost connected to interval 4. Costae moderately densely micropunctate (at magnification 50×) and each with a few additional confusedly dispersed macropunctures. Intercostal depressions deep and very densely macropunctate. Punctuation completely irregular, not forming rows or groups of punctures. Each macropuncture bearing short adherent white seta, but impressions do not appear densely pilose. Interspaces at maximum 2× as wide as puncture diameter but mostly as wide as puncture diameter.

Epipleura in basal 1/4 broad, densely punctate, then continuously gradually narrowing apically; punctures becoming finer and vanishing towards apex. Each puncture bearing long erect white seta.

Fore and mid femora in central part strongly shiny, sparsely punctate; hind femora distinctly more densely punctate. Each puncture bearing seta, setation particularly conspicuous on lower side of hind femora.

Ventral side of body (Fig. 32) overall densely and moderately coarsely punctate, only central part sparsely punctate with large shiny impunctate areas. Entire lateral sides of all abdominal ventrites densely and almost uniformly punctate, only towards external margins punctuation finer but even denser (Fig. 33).

Aedeagus length: 8.00 mm, width: 1.56 mm, length/width ratio: 5.13. Parameres cymbiform, apices narrow and rounded. Penis narrow, elongate, subparallel-sided, ventral side slightly impressed, lateral sides with deep canalculus, which has both margins equal (Fig. 79).

Variation. Body ♂♂ (n=6) length: 25.00–28.75 mm, width: 8.75–9.50 mm, length/width ratio: 2.86–3.03; ♀♀

(n=3): length: 30.00–31.50 mm, width: 10.25–11.00 mm, length/width ratio: 2.86–2.98. Whole series quite constant with similar structure of pronotum and elytra. Medial and principal impressions in some specimens less impressed. Colouration slightly variable; two specimens have more distinct blue tinge on elytral costae in combination with golden punctures in intercostal depressions; two specimens blue-black with blue tinge also in intercostal depressions; remaining four specimens with intercostal depressions more or less bronze and costae distinctly bluish.

Aedeagus (n=3) length: 7.44–8.00 mm, width 1.50–1.56 mm, length/width ratio: 4.96–5.13.

Differential diagnosis. *Chrysodema* (*C.*) *dany* sp. nov. is similar to *C.* (*C.*) *aeneoviolacea* and *C.* (*C.*) *sibuyanica* as all three have dark dorsum. It can be easily distinguished by distinctly and densely micropunctate costae on elytra, thus surface appears less regular and whole dorsum appears less shiny while *C.* (*C.*) *aeneoviolacea* has nearly polished costae without obvious micropunctures and thus dorsum is strongly shiny. *Chrysodema* (*C.*) *dany* sp. nov. has elytra usually distinctly bicoloured, costae in dark tones of blue or turquoise and intercostal depressions golden while *C.* (*C.*) *aeneoviolacea* has dorsum bronze-brown, pronotum often with a slight violet tinge. *Chrysodema* (*C.*) *sibuyanica* differs in densely pubescent frons with long setae while *C.* (*C.*) *dany* has it sparsely and pubescent with short setae.

Etymology. This species is named after Daniel ‘Dany’ Frank, son of the senior author of this paper. The species epithet is a noun in apposition.

Distribution. Indonesia: Maluku Province, Haruku Island and ? Seram Island (see remarks).

Remarks. One paratype was supposedly collected on Seram but since it was collected by native collectors and with the same date as the rest of the type series from Haruku it might have been mislabelled. On the other hand, it is possible that *C. dany* sp. nov. can be found in southern Seram as it is only 6 km air distance from Haruku. The occurrence on Seram should be verified with new material and until then we consider the occurrence there as doubtful.

Chrysodema (*Chrysodema*) *excellens* Théry, 1923

(Figs 37–39)

Chrysodema excellens Théry (1923): 221 (original description).

Chrysodema (*Chrysodema*) *excellens*: Obenberger (1926): 131 (catalogue); Lander (2003): 14 (key), 34 (redescription), 78 (colour Fig. 56); Bellamy (2008): 530 (catalogue).

Chrysodema serratipennis Blanchard: Kerremans (1909): 533 (nomen nudum).

Type locality. ‘Amboine’ [Indonesia, Maluku Province, Ambon Island].

Type material examined. HOLOTYPE (by monotypy): ♀, ‘Amboine [w, p] // Coll. THERY [w, p] // TYPE [r, p] // *Chrysodema / excellens* Thery / Type unique [w, h]’ (MNHN). Specimen was provided with an additional red printed label: ‘HOLOTYPE (by monopyty) / *Chrysodema / excellens* ♀ / THÉRY, 1923 / David Frank labelled X. 2017 [date handwritten]’.

Additional material examined (12 ♀♀). INDONESIA: MALUKU PROV.: Ambon Island: Ambon, 1 ♀ (MNHN); Ambon, 1 ♀ (MHNG); Cent. Amb., 1 ♀ (BMNH); Amboina (1 ♀ MNHN, 1 ♀ DFPC); Amboine, Collection Chevrolat, 1 ♀ (BMNH); Amboine, 1 ♀ (NHMB, coll. G. Frey); Amboine, 2 ♀♀ (MHNG; 1 ♀ figured in Lander (2003: Fig. 56)); Amboine, Jacquinet 1841, 1 ♀ (MNHN; ‘*C. serratipennis*’, see remarks); Ambon, Laihatu Soya, 11.–12.x.1998, S. Bílý leg., 1 ♀ (NMPC); Ambon, ii.2003, 1 ♀ (EJBS).

Redescription of holotype. Moderately preserved ♀ specimen, all legs with partly broken and missing tarsi; right antenna missing, left one missing from antennomere VIII on. Length 28.00 mm, width 9.75 mm, length/width ratio: 2.87.

Body generally bright metallic green with golden and copper reflections; elytra towards apex gradually more intensively copper. Dorsum in general with impressed parts including punctures golden-copper. Ventral side largely green and gradually golden towards lateral sides. Epipleura intensively copper. Mouthparts (with exception of mandibulae) yellow, antennae black only scape and pedicel metallic green. Ventral pads on all tarsomeres dorsally black, only their extreme base dark brown.

Head moderately densely punctate, punctures foveolate, each bearing short seta, thus frons sparsely pubescent. Vertex slightly more densely punctate but in central part with finer punctures; each puncture bearing adherent seta. Pronotum moderately densely macropunctate, shiny parts moderately densely micropunctate and obviously microreticulate. Micropunctures clearly visible at low magnifications (8–10 ×). Areas besides impressions and medial

line rather sparsely punctate with large and deeply impressed punctures, interspaces among them not smooth due to obvious micropunctuation and microreticulation. Macropunctuation laterally gradually coarser and denser. Each macropuncture bearing moderately long white adherent seta. Medial line well visible, moderately micropunctate and slightly elevated. Medial impressions shallow, but distinct. Principal impressions, moderately large, more or less circular, rather deeply impressed; with broad stripe of small and very dense punctures covering nearly entire impression. Lateral impressions shallow, with a few shallowly impressed punctures. Lateral margin carinate in basal 3/4, then widening and flattened and reaching to approx. 5/6 length of pronotum.

Elytra regularly convex with elevated rounded and very broad costae along suture and on intervals 2, 4, 6 and 8. Costae in basal half nearly flat and barely elevated, in apical half moderately convex. Interval 6 shortened, reaching only to 2/5 length of elytra, widely separated from interval 4; with only short and narrow isolated fragment surrounded by densely punctate impressed area. Costae distinctly micropunctate and microreticulate and each with several additional confusedly dispersed macropunctures. Intercostal depressions variously punctate, generally basal half much more sparsely punctate but with larger punctures, while apical half very densely punctate with somewhat smaller punctures. Also intercostal depressions in basal half nearly not impressed (with exception of impressions at base of elytra) while in apical half these are quite deeply impressed. Intercostal depression 1 in basal half with, more or less visible, two rows of very fine punctures; 2 and 3 in basal half completely irregularly distinctly punctate with normal punctures; remaining ones in basal half narrow and densely punctate with smaller punctures. Punctures in basal half larger; interspaces 2–5 × as wide as puncture diameter. Intercostal depressions in apical half impressed and densely punctate; punctures smaller; interspaces at maximum 2 × as wide as puncture diameter. Each macropuncture bearing short adherent white seta, but impressions do not appear pilose.

Epipleura in basal 1/4 broad, densely punctate, then continuously constricted with obtusely angled corner, gradually narrowing apically; punctures becoming finer and vanishing towards apex. Each puncture bearing long erect white seta.

Fore and mid femora in central part strongly shiny, sparsely punctate; hind femora somewhat more densely punctate. Each puncture bearing seta, setation particularly conspicuous on lower side of hind femora.

Ventral side of body (Fig. 38) overall densely and moderately coarsely punctate, only central part sparsely punctate with large shiny impunctate areas. Lateral sides of all abdominal ventrites densely punctate in laterobasal corner with distinctly smaller punctures and then gradually more sparsely punctate with larger punctures apically and centrally (Fig. 39).

Variation. Body ♀♀ (n=10): length: 28.00–34.25(36.75) mm, width: 9.75–12.25 mm, length/width ratio: 2.78–3.02. Moderately variable species. Colouration quite constant; one specimen entirely bright copper and one with impressions only golden, not with purple tint. Micropunctuation quite constant but macropunctuation of pronotum variable in both, size and density. General structure of elytra constant, fragment of interval 6 variously preserved, from almost not visible to distinct moderately long costa, but always very narrow and widely separated from other costae. Apical half of elytra with minor variability in punctuation, which is always small and costae obviously convex. Basal half of elytra variable; costae and intercostal depressions from completely flat to slightly elevated or impressed respectively, punctuation from very fine and hardly perceptible, to moderately coarse.

Aedeagus unknown, all examined specimens are females.

Differential diagnosis. This species can be easily distinguished by shortened third costa on elytra reaching only to midlength. Sometimes the costa continues as low fold but it is always densely punctate and has the same structure as surrounding impressed areas. Other species of the group has the third costa long, not particularly shortened. Most similar species is *C. (C.) wallacei* as both have large and cup shaped principal impressions of pronotum and both occur on Ambon but *C. (C.) wallacei* has the third costa long, reaching to apical fifth of elytra.

Distribution. Indonesia, Maluku Province, Ambon Island.

Remarks. Kerremans (1909) mentioned unavailable manuscript name '*Chrysodema serratipennis* Blanchard, mss.' among synonyms of *C. mniszehii*. We studied the original specimen labelled as following: '*C. serratipennis* / Blanch. / Amboine / M. Jacquinet [purple, h] // Chrys. / serratipennis / Blanch. [w, h] // Chrysodema / mniszehii / H. Deyr. / Kerremans det. 1909 [w, h] // MUSEUM PARIS / AMBOINE / JACQUINOT 1841 [w, p] // serratipennis / nomen nudum / Dét. T. LANDER 19 [w, h/p]' (MNHN) and it belongs to *C. (C.) excellens*, not to *C. (C.) mniszehii*.

Chrysodema (Chrysodema) mniszecchii Deyrolle, 1864

(Figs 40–42)

Chrysodema Mniszeczii Deyrolle (1864): 13 (key), 16 (original description, incl. colour Fig. 4, Pl. I); Saunders (1871): 14 (catalogue).

Chalcophora Mniszeczii [sic!]: Gemminger & Harold (1869): 1358 (catalogue).

Chrysodema Mniszeczii [sic!]: Kerremans (1892): 39 (catalogue); (1903): 74 (catalogue); Waterhouse (1905): 583 (note on synonymy); Akiyama & Ohmomo (2000): Pl. 45, Figs 482-1, 482-2 (iconography, misidentification=*C. wallacei*).

Chrysodema (Chrysodema) Mniszeczii [sic!]: Kerremans (1909): 515 (key), 533 (redescription).

Chrysodema (Chrysodema) Mniszeczii [sic!]: Obenberger (1926): 132 (catalogue).

Chrysodema (Chrysodema) mniszecchii: Lander (2003): 15 (key), 36 (redescription), 78 (colour Figs 60–66; all misidentifications, see remarks); Bellamy (2008): 534 (catalogue).

Type locality. ‘Goram’ [Indonesia, Maluku Province, Gorong Island].

Type material examined. SYNTYPES (4 ♀♀): 3 ♀♀, in front of row of beetles: ‘Mniszeczii / HDeyr. / Goram [w, h]’, under each specimen: ‘MUSÉUM PARIS / 1952 / COLL. R. OBERTHUR [y, p]’, (MNHN); 1 ♀, ‘Mniszeczii HDeyr. / Goram [w, h] // COLLECTION / de BONNEUIL [w, p] // Chrysodema / Mniszeczii H. Deyr / PARATYPE [w/r, h/p]’, (NHMB, coll. G. Frey). All specimens were provided with an additional red printed label: ‘SYNTYPE ♀ / *Chrysodema / mniszecchii* / DEYROLLE, 1864 / David Frank & / Lukáš Sekerka labelled VIII. 2018 [date handwritten]’.

Additional material examined (8 ♀♀). **INDONESIA: MALUKU PROV.:** Moluques, Heyne, 1 ♀ (BMNH, wrongly labelled as syntype of *C. fairmairei*; see Remarks under *C. dohrnii*). **Gorong Island:** Gor., Wallace, 1 ♀ (BMNH); Moluccas, Goram 1 ♀ (MHNG). **Seram Island:** Indonesie, Seram 1 ♀ (MHNG); Ceram, 1 ♀ (BMNH); Indonesia, Ceram Is., viii.1990, 1 ♀ (NMPC). **WEST PAPUA PROV.:** Fak-fak, U. N. Guinea, Pratt., 1 ♀ (MHNG).

Redescription of syntype (NHMB). Well preserved ♀ specimen with all appendages intact, only left hind leg without tarsus and left antenna without antennomeres X–XI. Length 31.50 mm, width 11.00 mm, length/width ratio: 2.86.

Body generally bright metallic green with golden and copper reflections; elytra towards apex gradually more intensively copper. Ventral pads on all tarsomeres dorsally black, only their extreme base dark brown.

Head moderately densely punctate, punctures foveolate, each bearing short seta, thus frons sparsely pubescent. Vertex more densely punctate and punctures bearing adherent setae.

Pronotum moderately densely macropunctate, shiny parts moderately densely micropunctate and weakly micro-reticulate. Micropunctures clearly visible at low magnifications (8–10 ×). Areas besides impressions and medial line rather sparsely punctate with large and deeply impressed punctures, interspaces among them smooth. Macropunctation laterally gradually coarser and more dense. Each macropuncture bearing moderately long white adherent seta. Medial line well visible, sparsely micropunctate, appears slightly elevated. Medial impressions shallow, but well visible. Principal impressions, moderately large, more or less circular, and moderately deeply impressed; internally with stripe of small and very dense punctures. Lateral impressions shallow, with several shallowly impressed punctures. Lateral margin carinate in basal 3/4, then widening and flattened and reaching to approx. 5/6 length of pronotum.

Elytra regularly convex with distinctly elevated rounded and very broad costae along suture and on intervals 2, 4, 6 and 8. Interval 6 shortened, reaching to 2/3 length of elytra, widely separated from interval 4. Costae moderately densely micropunctate (at magnification 50 ×) and each with a few additional confusedly dispersed macropunctures. Intercostal depressions deep and very densely macropunctate. Punctuation completely irregular, not forming rows or groups of punctures. Each macropuncture bearing short adherent white seta, but impressions do not appear pilose. Interspaces at maximum 2 × as wide as puncture diameter but mostly as wide as puncture diameter.

Epipleura in basal 1/4 broad, densely punctate, then abruptly constricted with obtusely angled corner and then gradually narrowing apically; punctures becoming finer and vanishing towards apex. Each puncture bearing long erect white seta.

Fore and mid femora in central part strongly shiny, sparsely punctate; hind femora distinctly more densely punctate. Each puncture bearing seta, setation particularly conspicuous on lower side of hind femora.

Ventral side of body (Fig. 41) overall densely and moderately coarsely punctate, only central part sparsely punctate with large shiny impunctate areas. Entire lateral sides of all abdominal ventrites densely and almost uniformly punctate, only towards external margins punctation finer but even denser (Fig. 42).

Variation. Body ♀♀ (n=9): length: 28.00–35.00(37.00) mm, width: 9.50–13.00 mm, length/width ratio: 2.75–2.95. All examined specimens metallic bright green, most of them with variously intense golden-copper metallic tint. Two of examined specimens entirely green, only with slightly indicated golden tint on impressions. Specimens from Goram have quite constant structure of pronotum with only minor variability in density of punctation and extent of impressions. Specimens from Ceram have much sparser and finer punctation of pronotum and shallow principal impressions, except one which has deep and rather oval principal impressions. Structure of elytra constant, only specimens from Ceram with slightly finer and sparser punctation of costae. Nevertheless, all three Ceram specimens show similar general morphology to typical *C. mniszechii* thus we consider them as intraspecific variability. Ventral pads on tarsi dorsally black in all examined specimens but one (Moluques, Heyne) with pale yellow ventral parts.

Aedeagus unknown, all examined specimens are females.

Differential diagnosis. *Chrysodema* (*C.*) *mniszechii* can be easily separated from other metallic green coloured species of the group by small, circular to oval principal impression, which has internally a stripe of small and very densely arranged punctures. The other two species, *C. (C.) wallacei* and *C. (C.) excellens*, differ in large and cup shaped principal impressions of pronotum, which are entirely densely punctate with small punctures.

Distribution. Indonesia, Maluku Province, Gorong and Seram islands (see remarks).

Remarks. Deyrolle (1864) described the species from Goram based on unknown number of specimens and did not state any depository. Lander (2003: 36) did not locate the type.

In the collection of R. Oberthür was a series of six specimens. Two are from Philippines, have smaller size and bluish tint and belong to *C. (C.) dohrnii*. One agrees in size and colouration but it originates from Ambon and in our opinion belongs to *C. (C.) excellens*. Therefore these three specimens certainly do not belong to the type series. The remaining three specimens do not have any locality label but certainly represent the original type specimens agreeing with the original description. We located a fourth specimen in NHMB (ex coll. G. Frey), which came from the collection of Bonneuil and was labelled by A. Théry as paratype of *C. (C.) mniszechii*. We assume that Deyrolle (1864) may have seen specimens from the Bonneuil collection as he is mentioned several times in the work and the Deyrolle family traded beetles with him. Therefore we agree with Théry and consider the specimen part of the original type series. Since all four specimens undoubtedly belong to the same species and show similar morphology (except colouration) we leave the specimens as syntypes.

Kerremans (1909) mentioned the occurrence of *C. (C.) mniszechii* in Ambon based on specimen from Jacquinet, which was provided with manuscript name '*Chrysodema serratipennis* Blanchard, *mss.*'. The specimen belongs to *C. (C.) excellens*, see Remarks under that species for additional details.

Lander (2003) synonymized *C. (C.) aeneoviolacea*, *C. (C.) dohrnii* and *C. (C.) fuscitarsis* with *C. (C.) mniszechii* but without examination of type of *C. (C.) mniszechii*. All three nominal taxa are here restored to species rank, see further remarks under respective species. Based on the studied material, *C. (C.) mniszechii* is known to us only from Gorong and Seram islands. The remaining records mentioned by Lander belong to other species, previously synonymized with *C. (C.) mniszechii*. Problematic are specimens from Sulawesi and surrounding islands, which we are for now unable to attribute to any species with certainty. Lander (2003: 36) mentioned occurrence of *C. (C.) mniszechii* in Sulawesi without further data. Based on material from his collection he had at disposal specimens from mainland Sulawesi as well as several adjacent islands included in the Sulawesi Province, namely Peleng Isl., Sangihe Isl. and Talaud Isls. Specimens from the two last islands belong to *C. (C.) dohrnii*, see material under that species. Remaining ones are in general similar to *C. (C.) mniszechii* and *C. (C.) wallacei* but we are not sure about their identity. However, we have only a small amount of the material and therefore we leave it to be resolved once more material is available.

We report one female from Fak-Fak, which certainly belongs to *C. (C.) mniszechii* but it would be desirable to confirm the occurrence in W Papua by more specimens.

Lander (2003: Figs 60–66) published photographs of dorsal habitus of seven specimens he identified as *C. (C.) mniszechii*. We examined most of the specimens and in our opinion none of the depicted specimens belong to true *C. (C.) mniszechii*: Figs 60 and 62 belong to *C. (C.) dohrnii*; Fig. 61 from Sangihe Is. belongs to curious population, see previous paragraph; Fig. 63 belongs to *C. (C.) wallacei*; Figs 64–65 belongs to *C. (C.) fuscitarsis*; and Fig. 66 belongs to *C. (C.) gottwaldi* sp. nov.

Chrysodema (Chrysodema) sibuyanica Fisher, 1924

(Figs 34–36, 80)

Chrysodema sibuyanica Fisher (1924): 45 (original description); Akiyama & Ohmomo (2000): Pl. 45, Figs. 483-1, 483-2, Pl. 46, 483-3 (iconography).

Chrysodema (Chrysodema) sibuyanica: Obenberger (1926): 133 (catalogue); Lander (2003): 13 (key), 32 (redescription), 78 (colour Fig. 53); Bellamy (2008): 539 (catalogue).

Type locality. ‘Sibuyan Island, Philippines’ [Philippines, Romblon Province, Sibuyan Island].

Type material examined. HOLOTYPE: ♀, ‘Island / Sibuyan / Baker [w, p] // 18974 [w, h] // TypoNo. / 25949 / U.S.N.M. [r, p/h]’ (USNM). Specimen was provided with an additional red printed label: ‘HOLOTYPE / *Chrysodema / sibuyanica* / FISHER, 1924 ♀ / David Frank & / Lukáš Sekerka labelled VIII. 2018 [date handwritten]’.

Additional material examined (25 ♂♂, 58 ♀♀). **PHILIPPINES:** Filipinas, Mantero coll., 1 ♀ (MNCN, coll. A. Cobos). **Sibuyan Island:** Island Sibuyan, Baker [the locality label is identical to the type specimen] (1 ♂, 1 ♀ NMPC; 2 ♀♀ IRSN; 1 ♀ DFPC; 1 ♂, 6 ♀♀ MNHN); Sibuyan, x.1922, C. F. Barker, (1 ♀ NMPC; 1 ♀ NHMB); Sibuyan Island, 1 ♂ (MNHN); Sibuyan, 1 ♂ (MNHN); Sibuyan Is., v.1980, 1 ♂, 1 ♀ (NMPC); Sibuyan Is., 1 ♀ (DFPC). **Romblon Island:** Philippines, I. Romblon, R. Lumawig leg., iv.1979, 1 ♀ (MNHN); Romblon, 1 ♀ (MNHN); Romblon, 1980, Witzgall, 1 ♂, 1 ♀ (SGBG); Romblon, 1981, Witzgall, (2 ♂♂, 1 ♀ SGBG; 1 ♀ ATMR, coll. R. Novak; Romblon, 1982, Witzgall, 1 ♀ (SGBG); Prov. Sibujan, Romblon Isld., vii.1984, 2 ♂♂, 8 ♀♀ (ATMR, coll. R. Novak; Romblon, iv.1989, (1 ♂, 1 ♀ NMPC; 1 ♂ VKSC); Romblon, vi.1989, 1 ♂, 1 ♀ (DFPC); Romblon, 31.viii.1995, Bourdant leg., 1 ♂ (VKSC); Romblon Isl., v.1998, 4 ♂♂ (SGBG); Romblon Isl., 24.x.1999, 1 ♀ (VKSC); Romblon Isl, iv.2000, 3 ♂♂, 1 ♀ (SGBG); Sibuyan Is., Romblon, 1 ♀ (DFPC). **Panay Island:** Panay Is., 1 ♂ (NMPC); Panay, Malindog Aklan mt., 10.iv.1993, Ben Villan coll., 2 ♀♀ (VKSC); Panay, Malindog Aklan mt., 17.v.1993, Ben Villan coll., 1 ♀ (VKSC); Panai Ins., Mt. Malindok Aklan, 24.5.1993, leg. Villah, 1 ♂, 3 ♀♀ (WBWA); Panay, Mt. Tinagun, v.1996, 1 ♀ (NMPC); Culasi, v.2018, 1 ♀ (DFPC). **Masbate Island:** Masbate, Auros, 7 ♀♀ (IRSN); Masbate, Auros, viii.1912, 7 ♀♀ (MFNB). **Cebu Island:** Cebu City, Talamaban, USC, Nasipit, 14.–18.12.2005, leg. C. Pangantihon 1 ♂ (WBWA). **Mindanao Island:** Est Mindanao, 1 ♀ (MHNG); Mindanao, 1983, Coll. Leymann, 1 ♂ (SGBG); N Mindanao, Bukidnon 18.iii.1993, 1 ♀ (NMPC).

Redescription of holotype. Well preserved ♀ specimen with all appendages intact, only left fore leg without ultimate tarsomere. Length 30.00 mm, width 10.00 mm, length/width ratio: 3.00.

Head metallic purple with golden tint on frons. Pronotum dark metallic black with purplish and bluish tint. Scutellum bright metallic purple-golden. Elytra in general obscure metallic blue-black, costae silver with weak purplish tint. Ventral side dark metallic with violet tint. Lateroapical sides of ventrites metallic purple. Legs including tarsi metallic black with violet tint, ventral pads brown. Labrum, maxillae and labium including palpi yellow. Scape and pedicel metallic black, remaining antennomeres brownish-black.

Head densely punctate, punctures foveolate, each bearing long seta, thus frons densely pilose. Vertex less densely punctate and punctures bearing adherent setae.

Pronotum moderately densely macropunctate, shiny parts moderately densely micropunctate and weakly micro-reticulate. Central part with shiny areas. Macropunctuation laterally gradually coarser and denser. Each macropuncture bearing moderately long white adherent seta. Medial line well visible, sparsely micropunctate, appears slightly elevated. Medial impressions very shallow, barely visible. Principal impressions barely visible, very shallow and hardly delimited from disc. Lateral impressions shallow, indistinct, only with a few fine punctures. Lateral margin rounded, distinct in basal 4/5 length.

Elytra regularly convex with distinctly elevated rounded costae along suture and on intervals 2, 4, 6 and 8. Interval 3 elevated only in basal 1/5 then vanishing. Interval 6 shortened, reaching to 3/4 length of elytra and there nearly merging with interval 4. Costae moderately densely micropunctate (at magnification 50 ×) and each with additional confusedly dispersed macropunctures. Intercostal depressions deep and very densely macropunctate. Punctuation completely irregular, not forming rows or groups of punctures. Each macropuncture bearing short adherent white seta. Interspaces at maximum 2 × as wide as puncture diameter

Epipleura in basal 1/4 broad, moderately densely punctate, then continuously gradually narrowing apically; punctures becoming finer and vanishing towards apex. Each puncture bearing long erect white seta.

Fore and mid femora in central part strongly shiny, sparsely punctate; hind femora distinctly more densely punctate and semiopaque. Each puncture bearing seta, setation particularly conspicuous on lower side of hind femora, where it forms a dense brush.

Ventral side of body (Fig. 35) laterally coarsely and very densely punctate, only central parts of thoracic ven-

trites sparsely punctate. Lateral sides of all abdominal ventrites densely and coarsely punctate in basal half, apical half with several sparsely distributed punctures (Fig. 36).

Variation. Body ♂♂ (n=19) length: 19.50–26.00 mm, width: 7.00–8.75 mm, length/width ratio: (2.78)2.86–3.07(3.12); ♀♀ (n=44): length: 22.00–32.25 mm, width: 7.75–11.25 mm, length/width ratio: 2.72–3.09. Body colouration always very dark metallic with bluish or violet metallic tint on costae, some specimens nearly black. Four studied specimens metallic dark bronze, and two metallic purple. Impressed areas on elytra usually silver but often also black; in aberrant bronze or purple specimens concolorous with costae. Punctuation of pronotum very variable from moderately dense to very dense, punctures ranging from rather small (several specimens) to large and coarse in most specimens. Mid line more or less visible in all specimens. Principal impression in many specimens entirely indistinct. Structure of elytra more constant than that of pronotum. Costae always elevated, rounded; punctuation in most specimens similar to that of holotype but in some, usually smaller sized specimens, coarser and present also more numerous on lateral sides of costae thus costae appear narrower.

Aedeagus (n=4) length: 6.33–6.88 mm, width 1.33–1.44 mm, length/width ratio: 4.63–4.84. Apices of parameres narrowing with outer side straight. Penis narrow, elongate, subparallel-sided, ventral side slightly impressed, lateral sides with deep canaliculus, which has both margins equal (Fig. 80).

Differential diagnosis. *Chrysodema (C.) sibuyanica* can be easily distinguished from remaining species of the group by densely pubescent frons with long setae, while remaining species have it sparsely pubescent with short semiadherent hairs. *Chrysodema (C.) sibuyanica* also has very shallow and thus hardly visible principal impressions on pronotum, which are distinct in other species. Finally, it is the only species of the group occurring in Philippines.

Distribution. Philippines: Sibuyan, Romblon, Panay, Masbate, Cebu and ? Mindanao islands (see remarks).

Remarks. We examined three specimens from Mindanao without further data. Therefore occurrence of this species in Mindanao should be verified with new material as the species is otherwise restricted to central Philippines (Panay, Romblon, Sibuyan, Masbate and Cebu).

We did not examine the specimen photographed in Lander (2003: Fig. 53), which almost certainly belongs to this species.

Chrysodema (Chrysodema) wallacei Deyrolle, 1864

(Figs 43–48, 81)

Chrysodema Wallacei Deyrolle (1864): 13 (key), 15 (original description); Saunders (1871): 14 (catalogue); Kerremans (1892): 40 (catalogue); Kerremans (1903): 74 (catalogue).

Chalcophora Wallacei: Gemminger & Harold (1869): 1359 (catalogue).

Chrysodema (Chrysodema) Wallacei: Kerremans (1909): 515 (key), 535 (redescription); Obenberger (1926): 135 (catalogue); Lander (2003): 13 (key), 35 (redescription, neotype designation), 78 (colour Figs 57–59); Bellamy (2008): 543 (catalogue).

Chrysodema sumatrensis Kerremans (1895): 197 (original description); Kerremans (1900b): 8 (noted); Kerremans (1903): 74 (catalogue); Waterhouse (1905): 583 (as synonym of *C. Wallacei*).

Chrysodema (Chrysodema) sumatrensis: Kerremans (1909): 535 (in synonymy of *C. (C.) Wallacei*); Obenberger (1926): 135 (in synonymy of *C. (C.) Wallacei*); Lander (2003): 35 (in synonymy of *C. (C.) wallacei*); Bellamy (2008): 541 (listed as synonym of *C. (C.) wallacei*), 543 (catalogue, in synonymy *C. (C.) wallacei*).

Chrysodema mniszecchii [misidentifications]: Akiyama & Ohmomo (2000): Pl. 45, Figs 482-1, 482-2 (iconography); Lander (2003): 78 (Fig. 63).

Type localities. *Chrysodema wallacei*: ‘Amboine’ [Indonesia, Maluku Province, Ambon Island]; *C. sumatrensis*: ‘Sumatra (Staundinger)’ [Indonesia, Sumatra Island—probably patria falsa].

Type material examined. *Chrysodema wallacei*: SYNTYPES (5 ♀♀): 2 ♀♀ in front of row of beetles: ‘Wallacei / HDeyr. / Amboine [w, h]; under beetles: MUSÉUM PARIS / 1952 / COLL. R. OBERTHUR [y, p]’ (MNHN); ♀ ‘Chrysodema / Wallacei / HDeyr. [w, h] // Chrysodema / sp. Amboina [w, h] / Coll. Van de Pool [w, p] / Coll. / THERY [w, p] // Chrysodema / Wallacei HDeyr. / PARATYPE [w/r, h/p]’ (NHMB, coll. G. Frey); ♀ ‘MUSEUM PARIS / Amboine / COLL. MONCHICOURT / 1879 [w, p/h] // 10/2 / 79 [w, h, circle] // prob cotype [w, h] // Chrysodema / Wallacei / H. Deyr. / Kerremans det. 1909 [w, h]’ (MNHN); ♀ ‘Wallacei. HDeyr. / Amboine [w, h] // COLLECTION / de BONNEUIL [w, p] // Coll. THERY [w, p] // Chrysodema / wallacei / Deyr., 1864 / Dét. T. LANDER 192003 [w, h/p]’ (MNHN). All specimens were provided with an additional red printed label: ‘SYNTYPE ♀ / *Chrysodema / wallacei* / DEYROLLE, 1864 / David Frank & / Lukáš Sekerka labelled VIII. 2018 [date handwritten]’.

Chrysodema sumatrensis: LECTOTYPE (present designation): ♀ ‘Sumatra / Stauding. [w, h] // Sumatrensis / Kerr.

/ Type [w, h] // Type [r, p, circle] (round) // Kerremans. / 1903-59. [w, p]' (BMNH). The specimen was provided with an additional red printed label: 'LECTOTYPE ♀ / *Chrysodema / sumatrensis* / KERREMANS, 1895 / David Frank & / Lukáš Sekerka des. VIII. 2018 [date handwritten]' and also white printed label: '*Chrysodema (Chrysodema) / wallacei* / DEYROLLE, 1864 / David Frank det. VIII. 2018 [date handwritten]'.

Additional material examined (10 ♂♂, 21 ♀♀). INDONESIA: MALUKU Prov.: Ambon Island: 'Amboine / Meyer D. [w, h] // C. Wallacei / H. Deyr. Amboine [w, h] // Wallacei / H. Deyr. [w, h] // Neotype [r, p]', 1 ♀ (MNHN, invalid neotype; see Remarks); Amboine, Meyer D., 1 ♀ (MNHN); Ambon, coll. Oberthur, 1 ♂ (MNHN); Amboine, coll. Van de Pool—coll. Thery, 1 ♀ (NHMB, coll. G. Frey); Amboine, 1 ♀ (NHMB, coll. gen.); Amboina, 1 ♀ (BMNH); Ambon, coll. T. Lander, 1 ♂, 3 ♀♀ (MHNG; ♂ figured in Lander (2003: Fig. 59)); Ambon, iv.2001, 1 ♀ (MHNG); Ambon I., 1 ♂ (MHNG); Amboina, 1 ♀ (MFNB); Ambon Isl., Mt. Tuna, i.2000, 1 ♀ (ATMR, coll. R. Novak); Ambon Isl., Mt. Tuna, iv.2003, 1 ♀ (ATMR, coll. R. Novak); Ambon Isl., Mt. Tuna, v.2008, 1 ♂, 2 ♀♀ (ATMR, coll. R. Novak); Ambon Isl., Mt. Tuna, iii.2009, 1 ♂ (DFPC). **Seram Island:** C. Ceram, Mansela, 2500 ft., Pratt, 1919, 2 ♂♂, 1 ♀ (BMNH); Ceram, Pratt, 1919, 1 ♂ (BMNH); Ceram, 1992, 2 ♂♂ (MHNG); Céram, coll. R. B. Holynski 1 ♀ (MHNG); Seram, Solea 12 km SE of Wahai, 17. 1.–6.ii.1997, S. Bílý leg., 1 ♀ (NMPC); Seram, Solea 12 km S of Wahai, 16.x.–4.xi.1998, Ole Mehl leg., ex larva, 1 ♀ (NMPC); Seram, i.2009, 1 ♀ (DFPC).

Redescription of syntype (NHMB). Well preserved ♀ specimen, left fore and right middle tarsi missing as well as left antennomeres VII–XI. Length 31.50 mm, width 10.75 mm, length/width ratio: 2.93.

Body generally bright metallic green with bluish-green reflections; punctate areas with more or less distinct golden tint. Ventral pads on all tarsomeres yellow.

Head moderately densely punctate, punctures foveolate, each bearing short seta, thus frons sparsely pubescent. Vertex more densely punctate and punctures bearing adherent setae.

Pronotum moderately densely macropunctate, shiny parts moderately densely micropunctate and weakly micro-reticulate. Micropunctures clearly visible at low magnifications (8–10×). Areas besides impressions and medial line rather sparsely punctate with large and deeply impressed punctures, interspaces among them smooth. Macropunctation laterally gradually coarser and more dense. Each macropuncture bearing moderately long white adherent seta. Medial line well visible, sparsely micropunctate, anterior half appears slightly elevated, while basal part somewhat impressed. Medial impressions shallow, more or less impressed only in anterior half. Principal impressions large, cup-shaped, and moderately deeply impressed; their punctation uniformly sized, small and very dense. Lateral impressions shallow, narrow, and with several shallowly impressed punctures. Lateral margin carinate in basal 3/4, then widening and flattened and reaching to approx. 5/6 length of pronotum.

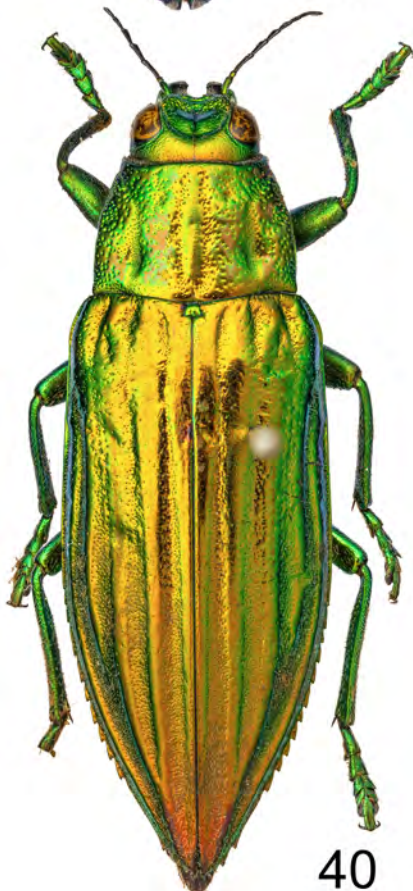
Elytra regularly convex with distinctly elevated rounded and very broad costae along suture and on intervals 2, 4, 6 and 8. Interval 6 shortened, reaching almost to 4/5 length and almost connected to interval 4. Costate moderately densely micropunctate (at magnification 50 ×) and each with a few additional confusedly dispersed macropunctures. Areas between costae impressed and very densely macropunctate. Punctuation completely irregular, not forming rows or groups of punctures. Each macropuncture bearing short adherent white seta, but impressions do not appear pilose. Interspaces at maximum 2 × as wide as puncture diameter but mostly as wide as puncture diameter.

Epipleura in basal 1/4 broad, densely punctate, then continuously gradually narrowing apically; punctures becoming finer and vanishing towards apex. Each puncture bearing long erect white seta.

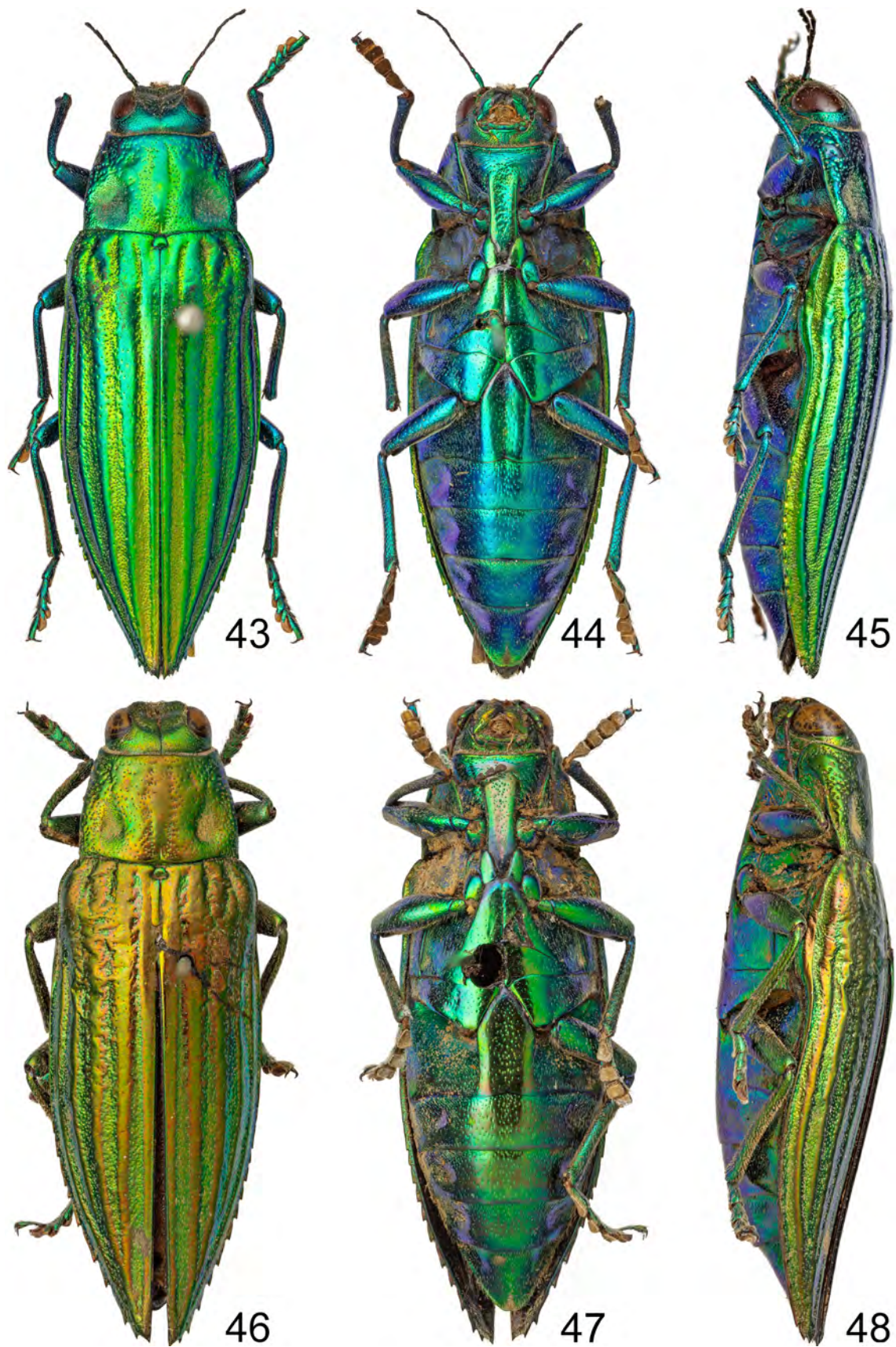
Fore and mid femora in central part strongly shiny, sparsely punctate; hind femora distinctly more densely punctate. Each puncture bearing seta, setation particularly conspicuous on lower side of hind femora.

Ventral side of body (Fig. 44) overall densely and moderately coarsely punctate only central part sparsely punctate with large shiny impunctate areas. Entire lateral sides of all abdominal ventrites densely and almost uniformly punctate, only towards external margins punctation finer but even denser (Fig. 45).

Variation. Body ♂♂ (n=9) length: 24.00–27.75(30.25) mm, width: 8.00–9.25(10.25) mm, length/width ratio: 2.95–3.26; ♀♀ (n=19): length: 27.00–34.75(36.00) mm, width: 9.00–11.50(12.50) mm, length/width ratio: (2.77)2.89–3.05. Specimens from Ambon bright metallic green with more or less distinct bluish tint on impunctate parts, one specimen predominantly blue, six specimens intensively copper-golden. Specimens from Seram bright metallic green with intensive copper-golden tint to mostly copper. Punctuation of pronotum moderately variable but general structure quite constant. In a few specimens medial impressions impressed along entire length. Principal impressions always cup shaped and at least moderately deep. Punctuation of elytra moderately variable, some specimens (usually smaller ones) with coarser punctation. Epipleura in narrowing part from continuous to abruptly constricted with obtusely angled corner. Ventral pads on tarsi in all examined specimens yellow to pale brown.



FIGURES 37–42. *Chrysodema*, general aspect: 37–39—*C. (C.) excellens* Théry, 1923 (holotype, ♀ 28.00 mm) © MNHN. 40–42—*C. (C.) mnischezii* Deyrolle, 1864 (syntype (NHMB), ♀ 31.50 mm). 37, 40—dorsal view; 38, 41—ventral view; 39, 42—lateral view.



FIGURES 43–48. *Chrysodema*, general aspect: 43–45—*C. (C.) wallacei* Deyrolle, 1864 (syntype (NHMB), ♀ 31.50 mm). 46–48—*C. (C.) sumatrensis* Kerremans, 1895 (lectotype, ♀ 28.25 mm)=*C. (C.) wallacei*. 43, 46—dorsal view; 44, 47—ventral view; 45, 48—lateral view.

Aedeagus (n=4) length: 7.44–8.11 mm, width 1.44–1.67 mm, length/width ratio: (4.86)5.17–5.23. Parameres cymbiform, apices narrow and rounded. Penis narrow, elongate, subparallel-sided, ventral side slightly impressed, lateral sides with deep canaliculus, which has both margins equal (Fig. 81).

Differential diagnosis. Similar looking and sympatric *C. (C.) exellens* can be distinguished by shortened third costa reaching only to half of elytra, which is long and reaching to apical fifth in *C. (C.) wallacei*. *Chrysodema (C.) mniszehii*, the other green species of the group, differs in small and irregularly shaped principal impressions of pronotum with a stripe of small and dense punctures, while *C. (C.) wallacei* has large and cup-shaped principal impressions entirely covered by small and densely arranged punctures.

Distribution. Indonesia, Maluku Province, Ambon and Seram islands (see remarks).

Remarks. Deyrolle (1864) described *C. wallacei* based on unknown number of specimens and did not mention any depository. Evidently he must have had a series of specimens as he mentioned various colouration and size range. Lander (2003: 35) invalidly designated a neotype for *C. (C.) wallacei* since he did not state why he is convinced that the original type series is lost. Moreover, we located two specimens from the collection of R. Oberthür (MNHN), which agree with the original description and undoubtedly represent the original syntypes. Additionally we found in MNHN two more specimens, one from the collection of Bonneuil and the other from collection of F. Monchicourt. Finally, we found one more specimen in NHMB (ex coll. G. Frey) which originally came from A. Théry and is labelled as paratype of *C. mniszehii* by him. Deyrolle (1864) evidently knew the collection of Bonneuil as he is mentioned several times in the paper. Monchicourt had an important collection of tropical insects mainly obtained through Deyrolle and later auctioned via Deyrolle again. The collection was partly purchased by Bonneuil, whose collection was purchased by A. Théry (Horn & Kahle 1935, 1936; Cambefort 2006). Since all specimens are in agreement with the original description and morphologically belong to a single species there is no need of lectotype designation and we treat them as syntypes.

Kerremans (1895) described *C. sumatrensis* (Figs 46–48) from Sumatra and did not state how many specimens he had at disposal. The taxon was synonymized with *C. wallacei* by Waterhouse (1905) and this was followed by subsequent authors. We have examined the type specimen and we concur with Waterhouse that it is the same taxon as *C. (C.) wallacei*. Moreover, the type locality is certainly erroneous as there is no other specimen from Sumatra and the species-group does not occur on that island. We have located only a single specimen of *C. (C.) sumatrensis* and since Kerremans did not indicate how many he had, we designate the specimen a lectotype to fix the identity to this particular specimen and thus fix the synonymy, in case other specimens are found elsewhere.

Akiyama & Ohmomo (2000: Pl. 45, Figs 482-1, 482-2) published photographs of two specimens from Ambon and attributed them to *C. (C.) mniszehii*. We did not examine this material but both specimens have evidently large principal impressions on pronotum, typical for *C. (C.) wallacei*.

Lander (2003: 78, Fig. 63) published a photograph of a dark blue specimen he attributed to *C. (C.) mniszehii*. The specimen is deposited in MNHN and comes from the collection of A. Théry but has no locality data. It certainly belongs to *C. (C.) wallacei* as it has deep principal impressions on pronotum and rounded costae on elytra.

***Chrysodema eximia* species-group**

***Chrysodema (Chrysodema) dohrnii* Saunders, 1874 stat. rev.**

(Figs 49–54, 82, 87)

Chrysodema Dohrnii Saunders (1874a): 308 (original description).

Chalcophora Dohrni [sic!]: Kerremans (1885): 126 (catalogue).

Chrysodema Dohrni [sic!]: Kerremans (1892): 38 (catalogue); Kerremans (1903): 74 (catalogue); Akiyama & Ohmomo (2000): Pl. 45, Figs 481-1, 481-2 (iconography).

Paracupta Dohrni: Kerremans (1892): 44 (catalogue, erroneous duplicate record); Kerremans (1900a): 286 (transfer to *Chrysodema*).

Chrysodema (Chrysodema) Dohrni [sic!]: Kerremans (1909): 515 (key), 532 (redescription); Obenberger (1926): 131 (catalogue).

Chrysodema (Chrysodema) dohrnii: Lander (2003): 36 (revision, as synonym of *C. (C.) mniszehii*, colour Fig. 62); Bellamy (2008): 530 (listed as synonym of *C. (C.) mniszehii*), 534 (catalogue, in synonymy *C. (C.) mniszehii*).

Chrysodema Fairmairei Kerremans (1895): 196 (original description); Kerremans (1900a): 286 (as synonym of *C. Mniszehii* [sic!]); Kerremans (1903): 74 (catalogue, in synonymy of *C. Mniszehii* [sic!]); Waterhouse (1905): 583 (as synonym of *C. Dohrnii*), **syn.**

nov.

Chrysodema (Chrysodema) Fairmairei: Kerremans (1909): 532 (in synonymy of *C. (C.) Dohrni* [sic!]); Obenberger (1926): 131 (cata-

logue, in synonymy of *C. (C.) Dohrni* [sic!]; Lander (2003): 36 (revision, as synonym of *C. (C.) mniszzechii*); Bellamy (2008): 530 (listed as synonym of *C. (C.) mniszzechii*), 534 (catalogue, in synonymy *C. (C.) mniszzechii*).
Chrysodema mniszzechii [misidentification]: Lander (2003): 78 (Figs 60–62).

Type localities. *C. dohrnii*: ‘Mindanao’ [Philippines, Mindanao Island]; *C. fairmairei*: ‘Iles Philippines’.

Type material examined. *C. dohrnii*: HOLOTYPE (by monotypy): ♀, ‘Mind= / =anao / 136 [w, h; round] // Dohrnii / Es. Type [w, h] // Saunders / 74-18 [w, p] // Type [r, p, circle]’ (BMNH). Specimen was provided with an additional red printed label: ‘HOLOTYPE (by monopyty) / *Chrysodema / dohrnii* / SAUNDERS, 1874 ♀ / David Frank & / Lukáš Sekerka labelled VIII. 2018 [date handwritten]’.

C. fairmairei: LECTOTYPE (present designation): ♂ ‘Philippines / Fairmaire [w, h] // Fairmaire / Kerr. / Type [w, h] // SYN- / TYPE [b, p, circle] // Kerremans. / 1903-59. [w, p]’ (BMNH). The specimen was provided with an additional red printed label: ‘LECTOTYPE ♂ / *Chrysodema / fairmairei* / KERREMANS, 1895 / David Frank & / Lukáš Sekerka des. VIII. 2018 [date handwritten]’ and also white printed label: ‘*Chrysodema (Chrysodema) / dohrnii* / SAUNDERS, 1874 / David Frank det. VIII. 2018 [date handwritten]’.

Additional material examined (34 ♂♂, 51 ♀♀). **PHILIPPINES:** I. Philipp, 1 ♀ (MNHN); Philippine, 2004, 1 ♂, 1 ♀ (MHNG). **Mindanao Island:** Mindanao, 1 ♀ (MHNG, figured in Lander (2003: Fig. 60) as *C. mniszzechii*); Mindanao, 1 ♂ (NMPC); Nord Mindanao (1 ♂ NMPC; 1 ♂, 2 ♀♀ MHNG); Mindanao, Mt. Parker, 1 ♂ (WBWA); Impalutao, Impasugong, iv.1984, 1 ♀ (ATMR, coll. R. Novak; N. Mindanao, 3.vi.1994, B. Villan leg., 1 ♀ (NMPC); Buk., Lindabon, W. Schultze, 1 ♀ (NMPC); West Mindanao, 2 ♂♂, 3 ♀♀ (MHNG); Surigao, 29.v.[19]15, 1 ♀ (IRSN); Mt. Apo 2000 m, ix.1999, 1 ♂ (SGBG); Mt. Apo, ii.2000, 1 ♂, 1 ♀ (SGBG); S Cotabato, Mt. Apo, Kidapawan, ix.2014 1 ♂, 3 ♀♀ (WBWA); San Francisco, Agusan del Sur, x.2017, 1 ♂ (DFPC); San Luis, Agusan del Sur, ii.2018, 1 ♂ (DFPC); San Luis, Agusan del Sur, iv.2018, 1 ♂, 1 ♀ (DFPC); San Luis, Agusan del Sur, v.2018 (1 ♀ DFPC; 1 ♀ SGBG); San Luis, Agusan del Sur, i.2019, 1 ♀ (DFPC); Esperanza, Agusan del Sur, v.2018, 1 ♀ (DFPC); Wao, Lanao del Sur, ii.2018, 1 ♂ (DFPC); Wao, Lanao del Sur, iv.2018, 1 ♀ (DFPC); Wao, Lanao del Sur, vi.2018, 1 ♀ (DFPC); Borbon, Agusan del Sur, x.2018, 2 ♂♂, 2 ♀♀ (DFPC); Borbon, Agusan del Sur, xii.2018, 1 ♂, 1 ♀ (DFPC); Borbon, Agusan del Sur, 2018 1 ♀ (DFPC); Borbon, Agusan del Sur, i.2019, 1 ♂, 1 ♀ (DFPC); Gutalac, Zamboanga del Norte, x.2018, 1 ♂ (DFPC); Kapatagan, Davao del Sur, x.2018, 1 ♂, 3 ♀♀ (DFPC); Kabanglasan, Bukidnon, 2018, 1 ♀ (DFPC); Dominorog, Bukidnon, xi.2018, 1 ♀ (DFPC); Dominorog, Bukidnon, iii.2019, 1 ♀ (2019); Mt. Kalatungan, Dominorog, Bukidnon, iv.2019, 1 ♀ (DFPC); Mt. Kalatungan, Dominorog, Bukidnon, iii.2019, 1 ♂ (DFPC); Kiamba, Sarangani, iv. 2019, 1 ♀ (DFPC). **Dinagat Island:** Dinagat, 3.xii.1915, 1 ♀ (IRSN); Dinagat Is., 6.v.1992, 1 ♂ (NMPC); Dinagat Is., 14.v.1992, 1 ♂ (NMPC); Dinagat Is., vii.1993 (1 ♂ NMPC; 4 ♂♂, 2 ♀♀ MHNG); Dinagat Is., 2.xii.1993, 1 ♂ (MHNG); Dinagat Is., 2.ii.1994, 1 ♀ (MHNG); Dinagat Is., 3.ii.1994, 1 ♀ (MHNG); Dinagat Is., 10.ii.1994, 1 ♀ (MHNG); Dinagat Is., 11.ii.1994, 1 ♀ (MHNG). **Leyte Island:** Mahaplag, Leyte, Central Visayas, iv.2018, 1 ♂, 1 ♀ (DFPC). **Samar Island:** W Samar, Marabol, ix.2014 1 ♀ (WBWA); Hinabangan, Samar, Eastern Visayas, xi.2017, 1 ♀ (DFPC). **Panay Island:** Panay Is., Philippines, 1 ♂ (MHNG). **Luzon Island:** Manille, 1 ♀ (MNHN); Luzon, Novaliches, nördl. v. Manila vii.[19]17, W. Jark leg., 1 ♀ (IRSN). **INDONESIA: NORTH SULAWESI PROV.: Sangihe Island:** Sulawesi, Sangir (Manalu), x.1992, leg. Van de Merghel (2 ♂♂, 1 ♀ ATMR coll. G. Novak, 1 ♂, 1 ♀ MHNG). **Karakelong Island:** Sulawesi Utara, Talaud Islands, Palau Karakelong, km E. Beo, 14.3.1997, leg. Stefan Naumann, 1 ♀ (MHNG).

Redescription of holotype. Well preserved ♀ specimen with all appendages intact, only left mid leg without last tarsomere. Length 27.50 mm, width 9.75 mm, length/width ratio: 2.82.

Body generally bright metallic green with golden and copper reflections; elytra towards apex gradually more intensively copper. Ventral pads on all tarsomeres dorsally yellowish-brown. Antennae dark brown, basal two antennomeres metallic green. Labrum, labium and maxillae pale brown.

Head moderately densely punctate, punctures foveolate, each bearing short seta, thus frons sparsely pubescent. Vertex more densely punctate and punctures bearing adherent setae.

Pronotum densely macropunctate, without larger impunctate areas except of medial line, shiny parts moderately sparsely micropunctate and distinctly micro-reticulate, thus not strongly shiny. Pronotal surface except of impressions and medial line appears quite rugose due to deeply impressed punctures. Macropunctuation laterally gradually coarser and denser. Each macropuncture bearing moderately long white adherent seta. Medial line well visible, flat, slightly elevated, sparsely micropunctate, with several macropunctures. Medial impressions weak, barely impressed. Principal impressions small, elongate, shallow; internally with more or less visible stripe of small and very dense punctures. Lateral impressions moderately deep, with several macropunctures and numerous very distinct

micropunctures. Lateral margin carinate in basal 3/4, then widening and flattened, reaching to approx. 5/6 length of pronotum.

Elytra regularly convex with distinctly elevated sharp and moderately broad costae along suture and on intervals 2, 4, 6 and 8. Interval 6 shortened, reaching to 3/4 length of elytra, widely separated from interval 4. Interval 2 straight along entire length. Costae moderately densely micropunctate (at magnification 50 ×) and each with a few additional confusedly dispersed macropunctures. Intercostal depressions deep and very densely macropunctate. Punctuation completely irregular, not forming rows or groups of punctures. Each macropuncture bearing short adherent white seta, but impressions do not appear pilose. Interspaces at maximum 2 × as wide as puncture diameter but mostly as wide as puncture diameter.

Epipleura in basal 1/4 broad, densely punctate, then abruptly constricted with obtusely angled corner and then gradually narrowing apically; punctures becoming finer and vanishing towards apex. Each puncture bearing long erect white seta.

Fore and mid femora in central part strongly shiny, sparsely punctate; hind femora somewhat more densely punctate. Each puncture bearing seta, setation particularly conspicuous on lower side of hind femora.

Ventral side of body (Fig. 50) overall densely and moderately coarsely punctate, only central part sparsely punctate with large shiny impunctate areas. Entire lateral sides of all abdominal ventrites densely and almost uniformly punctate, only towards external margins punctuation finer but even denser (Fig. 51).

Variation. Body ♂♂ (n=21) length: 22.50–28.25 mm, width: 7.75–9.50 mm, length/width ratio: 2.80–3.15; ♀♀ (n=28) length: 24.25–31.75(34.00) mm, width: 8.50–12.25 mm, length/width ratio: 2.70–2.97. All examined specimens metallic bright green, most of them with variously intense golden-copper metallic tint. Populations from Dinagat, Luzon, Samar, and Panay are morphologically very similar to the holotype and quite constant. They have slightly coarser punctuation and are distinctly shinier (particularly noticeable on pronotum and 2nd elytral costa). Those from Dinagat have bright green elytra; two also have golden tint; and one has bluish-green costae. Specimen from Samar is darker green and specimens from Panay and Luzon are golden-green. Specimens from Mindanao are much more variable. Dorsal colouration varies from dark petrol-green, bluish-green, green-gold to purple. Punctuation of pronotum can be somewhat finer than in the holotype or distinctly coarser. Specimens from west Mindanao have slightly more elevated costae on elytra. Also many specimens from Mindanao have nearly black ventral pads. Specimens from Sangihe Isl. and Talaud Isls. are bright metallic green with golden tint; principal impressions on pronotum from linear and shallow to suboval and moderately impressed.

Aedeagus brownish black (n=6) length: 7.11–7.89 mm, width 1.28–1.56 mm, length/width ratio: 4.84–5.35(5.64). Parameres broadly rhomboidal in outline, outer margins of apical half curved, apices narrow and rounded. Apex of penis broadly triangular, only slightly projecting beyond parameres. Penis ventrally moderately impressed with densely arranged striate laminae (Fig. 82). Pygidium flat and moderately densely pubescent (Fig. 87).

Differential diagnosis. For diagnostic characters see Table 3 on page 49 and diagnosis under *C. (C.) fuscitarsis*.

Distribution. Philippines: Mindanao, Dinagat, Leyte, Samar, Panay and ? Luzon islands (see remarks). Indonesia, North Sulawesi Province, Sangihe and Karakelong islands.

Remarks. Kerremans (1892) erroneously listed *C. (C.) dohrnii* twice in his catalogue, once as *Chrysodema* (p. 38) and then as *Paracupta* (p. 44). Also he wrote that the species is from Fiji, what is also erroneous as the type locality is Mindanao.

Lander (2003) synonymized *C. (C.) dohrnii*, *C. (C.) fairmairei* and *C. (C.) fuscitarsis* with *C. (C.) mniszzechii* without further comments, and just mentioned that *C. (C.) dohrnii* is a small form of *C. (C.) mniszzechii*. We examined types of all four taxa and in our opinion none of them are conspecific with *C. (C.) mniszzechii* as they have narrow and sharp costae on elytra while the latter has them very broad and rounded. Therefore *C. (C.) dohrnii* and *C. (C.) fuscitarsis* are here restored as distinct species. See more comments under *C. (C.) fuscitarsis*.

Chrysodema (C.) fairmairei was already synonymized with *C. (C.) mniszzechii* by Kerremans (1900a) and then with *C. (C.) dohrnii* by Waterhouse (1905). We concur with Waterhouse as the type of *C. (C.) fairmairei* (Figs 52–54) is nearly identical to that of *C. (C.) dohrnii* just differing in slightly deeper principal impression on pronotum and narrower medial line, which are variable characters. Therefore we re-synonymize it with *C. (C.) dohrnii*. Kerremans (1895) did not specify how many specimens he had at disposal when described *C. (C.) fairmairei*, therefore we designate a lectotype for this taxon to conserve its status. In BMNH there is a specimen from the collection of Kerremans labelled as syntype of *C. (C.) fairmairei* ‘Moluques / Heyne [w, h] // Fairmairei / Kerremans / Type [w,

h - Kerremans] // SYN- / TYPE [b, p - round] // Kerremans. / 1903-59. [w, p] // non syntype! / described only / from Philipp. Is. / R. Hol. XI. 1978 [w, h - Holyński]. This specimen cannot be considered a part of the type series because it came from Moluccas while *C. (C.) fairmairei* was described from Philippines: 'Iles Philippines; ma collection (par L. Fairmaire)' (Kerremans 1895: 196). Moreover the specimen belongs to *C. (C.) mniszzechii*.

Lander (2003: 78, Figs 60, 62) published photographs of two specimens identified as *C. (C.) mniszzechii*. We located one specimen from Mindanao (Fig. 60) in MHNG which certainly belongs to *C. (C.) dohrnii* as it has shallow and elongate principal impressions on pronotum and sharp costae on elytra. We did not locate the other specimen (Fig. 62) but in our opinion it also belongs to *C. (C.) dohrnii* having the same characters.

Occurrence of *C. (C.) dohrnii* in Luzon should be confirmed by new material as it is absent in recent material and the record is based on two old and questionably labelled specimens.

***Chrysodema (Chrysodema) fuscitarsis* Kerremans, 1895 stat. rev.**

(Figs 55–57, 83, 88)

Chrysodema fuscitarsis Kerremans (1895): 194 (original description); Kerremans (1903): 74 (catalogue); Akiyama & Ohmomo (2000): Pl. 46, Figs 484-1, 484-2 (iconography).

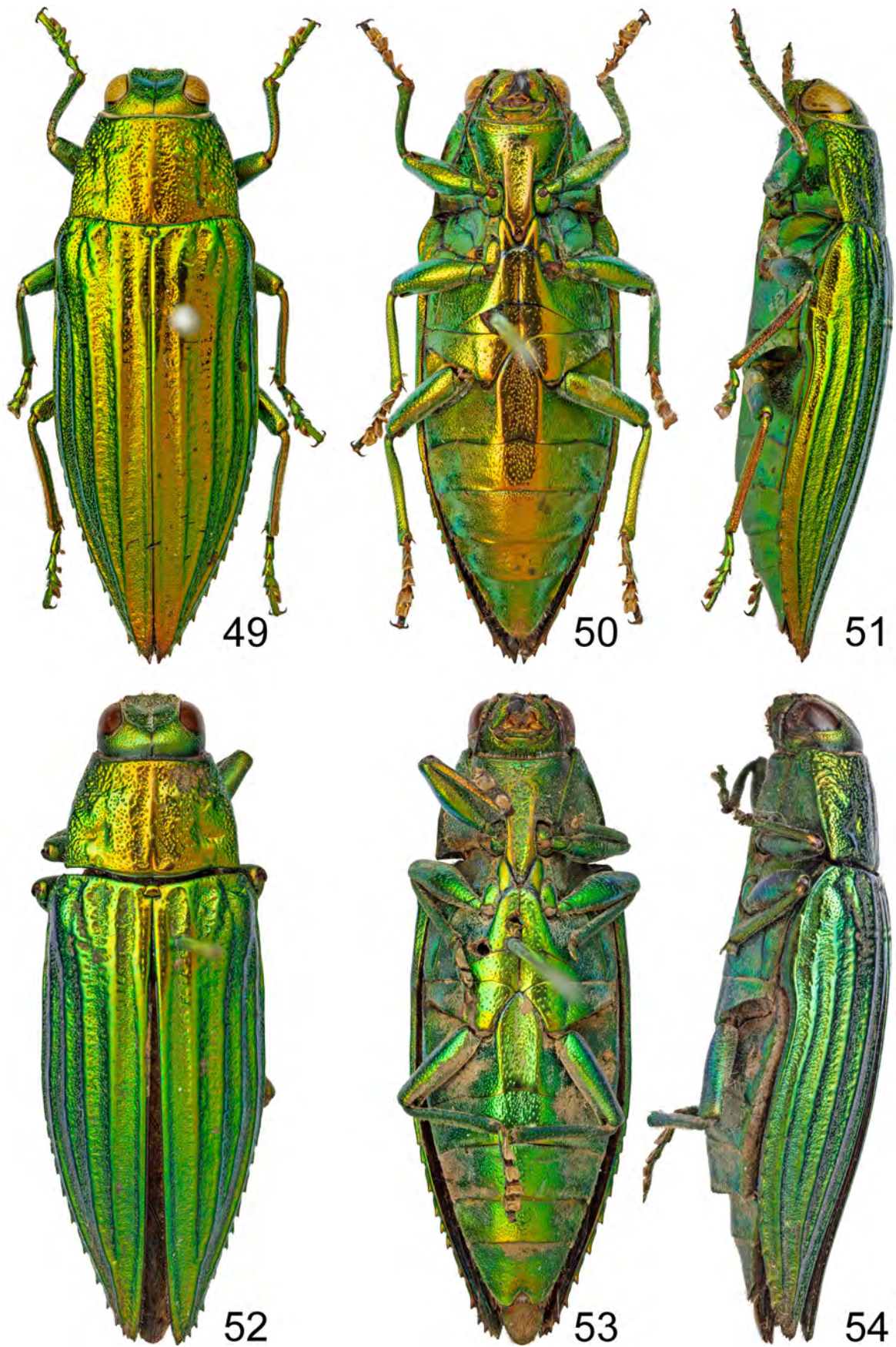
Chrysodema (Pseudochrysodema) fuscitarsis: Kerremans (1909): 505 (key, redescription); Obenberger (1926): 130 (catalogue).

Chrysodema (Chrysodema) fuscitarsis: Lander (2003): 36 (revision, as synonym of *C. (C.) mniszzechii*, colour Figs 64–65); Belamy (2008): 531 (listed as synonym of *C. (C.) mniszzechii*), 534 (catalogue, in synonymy *C. (C.) mniszzechii*).

Type locality. 'Mindanao; Palawan (Staudinger)' [Philippines: Palawan Island fixed by present lectotype designation.].

Type material examined. LECTOTYPE (present designation): ♀, 'Palawan / Stauding. [w, h] // fuscitarsis / Kerr. / Type [w, h] // SYN- / TYPE [b, p. circle] // Kerremans. / 1903-59. [w, p] // APPARTIENT AU / BRITISH MUSEUM / INALIENABLE [r, p] // Chrysodema / fuscitarsis / KERR / LECTOTYPE [r, h] // LECTOTYPE / design. by / R. HOLYŃSKI / 1978 [r, h]', (BMNH). Paralectotypes (2 ♀♀): ♀, 'Palawan / Meyer D. [w, h] // fuscitarsis / Kerr. / Type [w, h] // SYN- / TYPE [b, p, circle] // Kerremans. / 1903-59. [w, p] // PARALECTO- / TYPE [r, h]', (BMNH); ♀, 'Mindanao [sic! see remarks] / Stauding. [w, h] // fuscitarsis / Kerr. / Type [w, h] // Kerremans. / 1903-59. [w, p] // This is also one of the / syntypes of fuscitarsis Kerr. / In the description Kerrem. / states "Mindanao, Palawan / (Staudinger)" - this is the / only specimen from Min- / danao! Description states / "long. 25-33, larg. 8-12mm" / - this specimen is 25x8, / two others from Palawan / are 30x10 and 32x11! / R. Holyński XI. 1978 / verte [underside of the previous label] B. The book (ms.) / in Brit. Mus. (WH) con- / cerning the Kerremans' / collection states / "fuscitarsis Kerr. - / 3 types!" / RH [w, h by Holyński]', (BMNH). All specimens were provided with an additional red printed label: 'LECTOTYPE [or PARALECTOTYPE respectively] ♀ / *Chrysodema / fuscitarsis / KERREMANS, 1895 / David Frank labelled VIII. 2017 [date handwritten]*'.

Additional material examined (13 ♂♂, 58 ♀♀). PHILIPPINES: Philippinen, coll. Hauser, 1 ♀ (MFNB); Philippines, Stauding., 1 ♀ (MNHN). PALAWAN PROV.: Palawan Island: Palawan (4 ♂♂, 5 ♀♀ MHNG; 1 ♀ NMPC; 1 ♀ MNHN; 1 ♀ MFNB; 1 ♀ ATMR, coll. R. Novak; Palawan, Meyer D., 2 ♀♀ (MNHN); Palawan, Waterstradt (1 ♂, 1 ♀ MNHN; 1 ♀ IRSN); Palawan, xii.1984, 1 ♂, 4 ♀♀ (MHNG); Palawan, 23.vii.1995, 1 ♀ (MHNG, figured in Lander (2003: Fig. 65) as *C. mniszzechii* var. *fuscitarsis*); Palawan, viii.96, 1 ♀ (SGBG); Palawan, x.2005, 1 ♀ (DFPC); South Palawan, 2.viii.[19]82, 1 ♂, 2 ♀♀ (MNHN); Palawan Süd, xii.1979, 1 ♀ (ATMR, coll. R. Novak; Süd-Palawan, 1 ♀ (IRSN, '*C. holdhausi* mss', see remarks); South Palawan, 3.viii.1982, 1 ♀ (MNHN); Palawan, 1998, 1 ♂ (MHNG); Palawan, 13.xi.1998, 1 ♀ (MHNG); Palawan, Langan, 21.vii.[19]95, 1 ♀ (VKSC); Brook Point, 10.xii.1982, 1 ♀ (MHNG); S Palawan, Brook's Pt., iv.1986, 1 ♀ (ATMR, coll. R. Novak; Brook's Point, vii.1992, 2 ♀♀ (MHNG); Palawan, Broches Point, 20.4.1996 2 ♀♀ (WBWA); Brookes Pt, ii.1997, 2 ♀♀ (SGBG); Palawan Isl., Brookes Point, 15.vii.1997, 2 ♀♀ (ATMR, coll. R. Novak; Brooke's Point, 20.v.1998, 1 ♀ (VKSC); Brookes Point, 10.v.1999, 1 ♀ (SGBG); Palawan Isl., Brookes Point, 15.v.1998, 1 ♀ (ATMR, coll. R. Novak; Palawan Isl., Brookes Point, 17.vi.1998, 1 ♀ (ATMR, coll. R. Novak; Palawan Isl., Brookes Point, 22.vi.1998, 1 ♂ (ATMR, coll. R. Novak; Brookes Pt, vii.1999, 4 ♂♂, 1 ♀ (SGBG); Palawan Isl., Irawan, 26.v.2000, 1 ♀ (EJBS); Brooke's Point, 11.iv.2001, W. Kuhler leg., 1 ♀ (DFPC); Brookes Point, x.2001, 1 ♀ (MHNG); Brookes Pt, v.2002,



FIGURES 49–54. *Chrysodema*, general aspect: 49–51—*C. (C.) dohrnii* Saunders, 1874 (holotype, ♀ 27.50 mm). 52–54—*C. (C.) fairmairei* Kerremans, 1895 (lectotype, ♀ 28.25 mm)=*C. (C.) dohrnii*. 49, 52—dorsal view; 50, 53—ventral view; 51, 54—lateral view.



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FIGURES 55–60. *Chrysodema*, general aspect: 55–57—*C. (C.) fuscitarsis* Kerremans, 1895 (lectotype, Palawan, ♀ 28.00 mm). 58–60—*C. (C.) gottwaldi* sp. nov. (holotype, ♂ 24.75 mm). 55, 58—dorsal view; 56, 59—ventral view; 57, 60—lateral view.

5 ♀♀ (SGBG). **Balabac Island:** Balabac Is., 1997, 1 ♀ (BMNH). **Mindoro Island:** Philippines, Mindoro, Laglaize 1875, 1 ♀ (MNHN); Midoro, 1 ♀ (MHNG); Mindoro, x.1989, 2 ♀♀ (MHNG, 1 ♀ figured in Lander (2003: Fig. 64) as *C. mniszecii* var. *fuscitarsis*); Mindoro ?, vi.1993, 1 ♀ (MHNG).

Redescription of lectotype. Moderately preserved ♀ specimen, all tarsi partly broken, right antenna missing. Length 30.50 mm, width 11.00 mm, length/width ratio: 2.77.

Body pitch brown-black, impressed areas on elytra with bronze lustre; underside with dark violet metallic lustre. Ventral pads on all tarsomeres dorsally yellowish-brown. Antennae yellow, only basal two antennomeres infusate but not metallic. Labrum, labium and maxillae pale yellow.

Head moderately densely punctate, punctures foveolate, each bearing short seta, thus frons sparsely pubescent. Vertex more densely punctate and punctures bearing adherent setae.

Pronotum moderately densely macropunctate, shiny parts moderately densely micropunctate and distinctly micro-reticulate, thus not strongly shiny. Macropunctuation laterally gradually coarser and more dense. Each macropuncture bearing moderately long white adherent seta. Medial line well visible, sparsely micropunctate, with several macropunctures slightly elevated. Medial impressions weak, barely impressed. Principal impressions small, elongate, shallow; uniformly densely punctate with small punctures. Lateral impressions moderately deep, with several shallow and hardly visible macropunctures, without obvious micropunctures. Lateral margin carinate in basal 3/4, then widening and flattened and reaching to approx. 5/6 length of pronotum.

Elytra regularly convex with distinctly elevated sharp and moderately broad costae along suture and on intervals 2, 4, 6 and 8. Interval 6 shortened, reaching to 3/4 length of elytra, widely separated from interval 4. Interval 2 slightly curved apically. Costae moderately densely micropunctate (at magnification 50 ×) and each with a few additional confusedly dispersed macropunctures. Intercostal depressions deep and very densely macropunctate. Punctuation completely irregular, not forming rows or groups of punctures. Each macropuncture bearing moderately long adherent white seta, but impressions do not appear pilose. Interspaces at maximum 2 × as wide as puncture diameter but mostly as wide as puncture diameter.

Epipleura in basal 1/4 broad, densely punctate, then almost continuously constricted and gradually narrowing apically; punctures becoming finer and vanishing towards apex. Each puncture bearing long erect white seta.

Fore and mid femora in central part strongly shiny, sparsely punctate; hind femora somewhat more densely punctate. Each puncture bearing seta, setation particularly conspicuous on lower side of hind femora.

Ventral side of body (Fig. 56) overall densely and moderately coarsely punctate, only central part sparsely punctate with large shiny impunctate areas. Entire of lateral sides of abdominal ventrite I densely punctate with small punctures. Lateral sides of ventrites II–V densely punctate in basal half and sparsely punctate in apical half (Fig. 57).

Variation. Body ♂♂ (n=13) length: (22.50)24.00–26.75 mm, width: 8.25–9.75 mm, length/width ratio: 2.64–2.86(2.94); ♀♀ (n=58) length: (24.25)25.50–35.75 mm, width: 8.50–13.50 mm, length/width ratio: 2.62–2.91(3.14). Very variable species. Dorsal colour always dark brown-bronze but often with copper, violet or dark blue tint; sometimes colours combined but costae always darker than intercostal depressions. Antennae from pale brown to almost black; antennomeres I–II always dark, often partly to completely metallic. Ventral pads on tarsi always pale yellowish-brown. Structure of pronotum also variable; punctuation moderately dense to dense; micropunctate parts from dull to strongly shiny; principal impressions from shallow and small to moderately deep and large; medial impressions from almost indistinct to shallow and thus medial line from flat to slightly elevated. Structure of elytra more constant in comparison to pronotum but still considerably variable; costae variously elevated but always sharp, interval 6 rarely connected to 4 (in seven specimens) but mostly separated. Lateral sides of abdominal ventrites II–V sometimes entirely punctate.

Aedeagus pale brown (n=3) length: 6.78–7.00 mm, width (1.33)1.50–1.56 mm, length/width ratio: 4.26–4.35(5.26). Parameres broadly rhomboidal in outline, outer margins of apical half curved, apices narrow and rounded. Apex of penis broadly triangular, only slightly projecting beyond parameraes Penis ventrally moderately impressed with densely arranged striate laminae (Fig. 83). Ventrite VIII flat and very densely pubescent (Fig. 88).

Differential diagnosis. *Chrysodema* (*C.*) *fuscitarsis* and *C.* (*C.*) *dohrnii* are very similar sharing the same morphology of male genitalia and also structure of pronotum and elytra. *Chrysodema* (*C.*) *fuscitarsis* differs in pale coloured antennae, usually without metallic antennomeres I–II (vs. dark with antennomeres I–II bright green metallic), dark brown-bronze body (vs. bright green), and somewhat stouter body, and junction of elytral intervals 2 and 4 situated distinctly less posteriorly than in *C.* (*C.*) *dohrni*, which has it often nearly at apex. The colouration of anten-

nae is variable in *C. (C.) fuscitarsis* but most of studied specimens have these pale coloured while *C. (C.) dohrnii* has them always dark. Also *C. (C.) dohrnii* has tarsal pads often black, while they are always pale in *C. (C.) fuscitarsis*. *Chrysodema (C.) dohrnii* is relatively widespread in Philippines and occurs certainly in Dinagat, Mindanao, Leyte and Samar while *C. (C.) fuscitarsis* occurs in Palawan, Balabac and probably also in Mindoro. Based on the studied material we treat both as distinct species, however, more material from various Philippine islands is needed to fully evaluate status of these two taxa. Also it would be desirable to acquire new material and analyze molecular data to see how similar individual populations are.

Distribution. Philippines: Palawan, Balabac and ? Mindoro islands (see remarks).

Remarks. *Chrysodema (C.) fuscitarsis* was synonymized with *C. (C.) mniszehii* by Lander (2003), however, it has narrow and sharp costae on elytra while the latter has them very broad and rounded, therefore we restore species status of *C. (C.) fuscitarsis*. Hołyński studied type specimens of *C. (C.) fuscitarsis* in BMNH and labelled only two of them (specimens from Palawan) as lectotype and paralectotype respectively but he did not publish the designation. We re-examined these specimens and validate the lectotype designation to fix the type locality and conserve the status of this taxon. The specimen from Mindanao is certainly a part of the type series because it was mentioned in the original description ('Mindanao; Palawan (Staudinger); ma collection'), however, we suppose that the locality data are erroneous as we examined numerous specimens of this species from Palawan but none from Mindanao.

Lander (2003: 78, Figs 64–65) published figures of two specimens of '*C. mniszehii* var. *fuscitarsis*' as he synonymized *C. (C.) fuscitarsis* with *C. (C.) mniszehii*. Both depicted specimens truly belong to *C. (C.) fuscitarsis* and are deposited in MHNG; that on Fig. 64 was collected on Mindoro and the other one (Fig. 65) on Palawan.

Most examined specimens were from Palawan but we also have seen five specimens from Mindoro. They were collected in 1990's but poorly localized just as 'Mindoro' therefore more material is needed to confirm occurrence of *C. (C.) fuscitarsis* in Mindoro.

In the collection of IRSN there is a single specimen from the collection of Hoschek labelled as type of '*Chrysodema Holdhausi* m. Det. Hoschek 1944'. This name was never published and the specimen represents typical *C. (C.) fuscitarsis*.

***Chrysodema (Chrysodema) gottwaldi* sp. nov.**

urn:lsid:zoobank.org:act:352DDA6B-0083-4DFE-8D32-3A6664613262

(Figs 58–60, 84, 89)

Chrysodema fairmairei [misidentification]: Akiyama & Ohmomo (2000): Pl. 46, Figs 485-1, 485-2 (colour photographs).

Chrysodema mniszehii [misidentification]: Lander (2003): 78 (colour Fig 66).

Type locality. Philippines, Palawan Province, Palawan Island, Brooke's Point.

Type material. HOLOTYPE: ♂, 'Brookes Pt. / Palawan Isl. / Jul. '01 [w, p] // ex Coll. / M. H. HEMPEL / (München) [w, p] // *Chrysodema / fairmairei / Kerremans [w, p]*' (NMPC). PARATYPES (6 ♀♀): 1 ♀, 'Brookes Pt. / PALAWAN / Mai. '01 [w, p] // *Chrysodema / fairmairei* Kerr. / det. S. Gottwald 2003 [w, p]' (SGBG); 1 ♀, 'Palawan Is / PHILIPPINES / 12 / Coll. T. LANDER [w, h/p]' (MHNG); 2 ♀♀, 'Brook's Point July 1992 / South Palawan PHILIPPINES / Coll. VAN DE MERGHEL [w, p]' (1 ♀ MHNG figured in LANDER (2003: 78, Fig. 66) as *C. mniszehii*), 1 ♀ DFPC); 2 ♀♀, 'Philippinen / South-Palawan / 12. 1979 [w, h] // '*Chrysodema 1864 / mniszehii* Deyrolle, / det. G. Novak 2005 [w, p]' (ATMR, coll. R. Novak. All specimens provided with an additional red printed label: 'HOLOTYPE [or PARATYPE respectively] [sex] / *Chrysodema (Chrysodema) / gottwaldi* sp. nov. / David Frank & / Lukáš Sekerka det. I. 2019 [date handwritten]'

Description of holotype. Well preserved ♂ specimen, missing only last left hind tarsomere. Length 24.75 mm, width 9.00 mm, length/width ratio: 2.75.

Body generally bright metallic green with golden reflections. Ventral pads on all tarsomeres dorsally brownish-black. Antennae black, basal two antennomeres metallic green. Labrum, labium and maxillae pale brown. Ventral side strongly shiny, bright metallic green, centrally golden-copper.

Head moderately densely punctate, punctures foveolate, each bearing short seta, thus frons sparsely pubescent. Vertex more densely punctate and punctures bearing adherent setae.

Pronotum densely macropunctate, shiny parts moderately densely micropunctate and distinctly micro-reticulate, thus not strongly shiny. Macropunctuation laterally gradually coarser and denser, thus the structure is strongly

rugose. Each macropuncture bearing moderately long white adherent seta. Medial line more or less visible, sparsely micropunctate, without macropunctures, flat. Medial impressions indistinct. Principal impressions moderately large, oval, relatively deep; internally with more or less visible stripe of small and dense punctures. Lateral impressions shallow, with several more or less visible macropunctures and indistinct micropunctures. Lateral margin carinate in basal 4/5, then widening and flattened and reaching almost to anterior margin of pronotum.

Elytra regularly convex with slight postscutellar hump, bearing distinctly elevated sharp and moderately broad costae along suture and on intervals 2, 4, 6 and 8. Interval 2 distinctly curved on apical third. Interval 6 shortened, reaching to 1/2 length of elytra, then interrupted, before continuing for short distance as isolated branch laterally connected to interval 4. Costae moderately densely micropunctate (at magnification 50 ×) and each with a few additional confusedly dispersed macropunctures. Intercostal depressions deep and moderately densely macropunctate. Punctuation completely irregular, but partly with tendency to form small groups of punctures, which appear like larger puncture and particularly visible on basal half of elytra. Each macropuncture bearing short adherent white seta, but impressions do not appear pilose. Interspaces at maximum 2 × as wide as puncture diameter but mostly as wide as puncture diameter.

Epipleura in basal 1/4 broad, sparsely and moderately punctate, then abruptly constricted with obtusely angled corner and then gradually narrowing apically; punctures becoming finer and vanishing towards apex. Each puncture bearing long erect white seta.

Fore and mid femora in central part strongly shiny, sparsely punctate; hind femora somewhat more densely punctate. Each puncture bearing seta, setation particularly conspicuous on lower side of hind femora.

Ventral side of body (Fig. 59) overall densely and moderately coarsely punctate only central part sparsely punctate with large shiny impunctate areas. Entire lateral sides of all abdominal ventrites densely and almost uniformly punctate, only towards external margins punctuation finer but even denser (Fig. 60).

Aedeagus length: 8.56 mm, width: 1.61 mm, length/width ratio: 5.32. Parameres elongate-rhomboidal in outline, apices moderately broad and subtruncate. Apex of penis strongly narrowed and projecting beyond parameres. Penis ventrally deeply concave without striate laminae (Fig. 84). Ventricle VIII impressed and very densely pubescent (Fig. 89).

Variation. Body ♀♀ (n=7): length: 27.00–31.25 mm, width: 10.25–11.50 mm, length/width ratio: (2.63)2.70–2.72. Slightly variable species. Colouration as in holotype, just one specimen with predominantly copper dorsum. Structure of elytra constant only third costa interrupted to complete. Pronotum of variable shape and structure; most specimens with trapezoidal pronotum, but one with subquadrate. Punctuation of pronotum can be either slightly sparser and finer than in holotype or somewhat denser and coarser. Principal impressions shallow to moderately deep.

Differential diagnosis. *Chrysodema (C.) gottwaldi* sp. nov. is externally quite similar to *C. (C.) dohrnii* because of green dorsum and to *C. (C.) fuscitarsis* due to dense pubescence of elytra. However, it has entirely different morphology of the male genitalia with parameres elongate (vs. broadly rhomboidal), ventral side of penis with smooth and deep concavity (vs. slightly impressed with numerous laminae), and apex of penis narrowly pointed and projecting beyond parameres (vs. broadly triangular and barely projecting beyond parameres). *Chrysodema (C.) gottwaldi* sp. nov. is sympatric with *C. (C.) fuscitarsis* but can be distinguished by green colour (vs. brown-bronze) and sparsely pubescent lateral sides of pronotum (vs. densely pubescent). See also Table 3 on page 49.

Etymology. This species epithet is dedicated to Stephan Gottwald (Berlin, Germany), specialist in the Buprestidae, who kindly provided the holotype specimen.

Distribution. Philippines, Palawan Province, Palawan Island.

Remarks. Colour photographs of this species were already published by Akiyama & Ohmomo (2000: Pl. 46, Figs 485-1, 485-2) under the name *C. (C.) fairmairei* and by Lander (2003: 78, Fig. 66) as *C. (C.) mniszeczhii*. We have studied the specimen illustrated by Lander, which is here designated as paratype of *C. (C.) gottwaldi* sp. nov. Based on external characters shown in the photograph we are convinced that also the specimen illustrated by Akiyama & Ohmomo (2000) belongs to *C. (C.) gottwaldi* sp. nov. but we did not study the specimen.

TABLE 3. Diagnostic characters of the *Chrysodema* (*C.*) *eximia* species-group.

	<i>C. (C.) dohrnii</i> Saunders, 1874 Figs 49–54, 82, 87.	<i>C. (C.) gottwaldi</i> sp. nov. Figs 58–60, 84, 89.	<i>C. (C.) fuscitarsis</i> Kerremans, 1895 Figs 55–57, 83, 88.
pronotum	moderately micropunctate; macropunctures rounded and isolated; lateral sides sparsely pubescent	weakly micropunctate; macropunctures rounded and isolated; lateral sides sparsely pubescent	strongly micropunctate; macropunctures grouped forming low folds; lateral sides densely pubescent
elytra	green; more sparsely pubescent and usually without profound wax layers thus more shiny; first costa parallel to suture	green; densely pubescent and usually with yellow wax; first costa bent in apical 1/4 and running obliquely to suture	bronze-brown; densely pubescent and usually with yellow wax; first costa bent in apical 1/4 and running obliquely to suture
tarsomeres and antennomeres I–II	metallic green	metallic green	brown or yellow, not metallic
male ventrite VIII	green and flat (Fig. 87)	green and with impressed pubescent area (Fig. 89)	brown and flat (Fig. 88)
male parameres	broadly rhomboidal, outer margins of apical half curved; apices rounded (Fig. 82)	elongate-rhomboidal, not strongly widened in central part; apices subtruncate (Fig. 84)	broadly rhomboidal, outer margins of apical half straight; apices rounded (Fig. 83)
penis—ventral side	moderately impressed with densely arranged striate laminae	deeply concave without striate laminae	moderately impressed with densely arranged striate laminae
penis—apex	broadly triangular, only slightly projecting beyond parameres	narrowly pointed and strongly projecting beyond parameres	broadly triangular, only slightly projecting beyond parameres

subgenus *Pseudochrysodema* Saunders, 1874

Pseudo-chrysodema Saunders (1874b): 223 (original description); Kerremans (1885): 124 (catalogue, as synonym of *Chalcophora*); Waterhouse (1892): 411 (noted); Kerremans (1892): 40 (catalogue); Kerremans (1893): 105 (key to genera); Kerremans (1903): 73 (catalogue, as synonym of *Chrysodema*); Heyne & Taschenberg (1908): 132 (noted, in synonymy of *Chrysodema*); Carter (1929): 300 (catalogue, in synonymy of *Chrysodema*); Kurosawa (1982): 190 (listed in synonymy of *Chrysodema*).

Chrysodema (*Pseudochrysodema*): Kerremans (1909): 504 (key to subgenera), 505–508 (key of species, monograph); Obenberger (1926): 130 (catalogue); Holyński (1994): 69–71 (key to subgenera); Bellamy (1985): 415 (catalogue); Bellamy (2002b): 185 (catalogue); Bellamy (2003): 35 (catalogue); Lander (2003): 9 (noted); Bellamy (2008): 526 (catalogue); Holyński (2014): 373 (key to subgenera); Frank & Sekerka (2016): 672 (noted).

Chrysodema (*Leganya*) Holyński (1994): 71 (original description); Bellamy (2003): 35 (catalogue); Lander (2003): 9 (noted); Bellamy (2008): 526 (catalogue); Holyński (2014): 373 (key to subgenera). **syn. nov.**

Chrysodema (*Marsikiella*) Holyński (2014): 374 (original description); Kubáň (2016): 460 (catalogue). **syn. nov.**

Remarks. Lander (2003: 21) synonymized ten nominal taxa with *C. (P.) radians* in addition to another twelve already considered synonyms of that species by previous authors. *Chrysodema (P.) radians* was described from Port Praslin in the Bismarck Archipelago. The depository of the type specimen of *C. radians* is unknown, however, we have examined large material from entire area and observed considerable morphological differences among individual taxa and therefore it seems to us that the very broad concept of *C. (P.) radians* is not sustainable. Nevertheless, this species-group requires complex revision which we already started but we were unable to assemble all necessary types yet. Here we treat only the dark coloured taxa, *C. (P.) coelestina* and *C. (P.) instabilis*, for the purpose of description of a new species, *C. (P.) jakli* sp. nov.

***Chrysodema (Pseudochrysodema) coelestina* Obenberger, 1922 stat. rev.**

(Figs 61–66, 85)

Chrysodema coelestina Obenberger (1922): 73 (original description); Obenberger (1928): 148 (description erratum).

Chrysodema (Chrysodema) coelestina: Obenberger (1926): 131 (catalogue); Lander (2003): 21 (revision, as synonym of *C. (C.)*

radians), 76 (colour Fig. 33); Bellamy (2008): 529 (listed as synonym of *C. (C.) radians*), 537 (catalogue, in synonymy of *C. (C.) radians*).

Chrysodema elongata [misidentification]: Akiyama & Ohmomo (2000): Pl. 44, Figs 464-1, 464-2.

Chrysodema radians var. *laevipennis* [misidentification]: Obenberger (1926): 131 (catalogue).

Type locality. ‘Key Island’ [Indonesia, Maluku Province, Kei Islands].

Type material examined. LECTOTYPE (present designation): ♂, ‘Key Isles [w, h] // *Chrysodema / coelestina* m. / Type / Det. Dr. Obenberger [w, h/p] // TYPUS [r, p] // Mus. Nat. Pragae / Inv. 20 072 [orange, p/h]’ (NMPC). Specimen was provided with an additional red printed label: ‘LECTOTYPE ♂ / *Chrysodema / coelestina* / OBENBERGER, 1922 / David Frank & / Lukáš Sekerka des. VIII. 2018 [date handwritten]’.

Additional material examined (10 ♂♂, 75 ♀♀). **INDONESIA: MALUKU PROV.: Kai Islands:** I. Key, 1 ♀ (MNHN); Key, 1 ♀ (MNHN); Key Insel, (7 ♀♀ NMPC; 1 ♂, 2 ♀♀ ATMR, coll. R. Novak; Key Inseln, coll. Plason (1 ♀ NMPC; 1 ♂, 12 ♀♀ ATMR coll. G. Novak; 3 ♀♀ NMBE); Key Inseln, Austr. Gassner, 1 ♀ (NMPC); Key Isl., 6 ♀♀ (NMPC); Key Inseln, 2 ♀♀ (NHMB, coll. G. Frey); Key Insel, 1 ♂, 1 ♀ (NHMB, coll. G. Frey); Iles Key, collection Le Mout, 1 ♀ (MNCN, coll. A. Cobos); Kai Isl., coll. Jakl, 1 ♀ (ATMR, coll. R. Novak; Key Isles 1 ♂, 1 ♀ (WBWA); Kai Isl., vi.1999, 1 ♀ (VKSC); Kei Isl. xii.2011, 1 ♂, 1 ♀ (DFPC). **Kai Besar Island:** Kai Besar Isl., i.2005, coll. Müller, 1 ♂, 1 ♀ (ATMR, coll. R. Novak; Kei Besar, ix.2006, 1 ♂ (DFPC); Elat, Kai Besar Isl., 12/2012, coll. T. Richter 1 ♀ (WBWA). **Kai Dullah Island:** Key, Toeal, 1 ♀ (NHMB, coll. G. Frey); Key Inseln, Tual, 1884, C. Ribbe (1 ♀ NMPC; 1 ♂, 5 ♀♀ MNHN); Key Inseln, Tual, (2 ♀♀ MNHN; 1 ♀ NMBE). **Kai Kecil Island:** Key-Inseln, Tual-Langgur, (5 ♀♀ NHMW; 2 ♀♀ NMBE); Kei Kecil Isl, ix.2001, 1 ♀ (ATMR, coll. R. Novak; Kei Kecil, ii.2004, 1 ♂ (VKSC); Kai Kecil Isl., ii.2004, coll. Müller, 2 ♀♀ (ATMR, coll. R. Novak; Kai Kecil Isl., ix.2004, coll. Müller, 1 ♀ (ATMR, coll. R. Novak; Kei Islands, vi.2003, 1 ♀ (DFPC). **Tayandu Islands:** Kepulauan Kai, Tayandu, ix.2004, coll. Müller, 2 ♀♀ (ATMR, coll. R. Novak; Tayandu, ii.2004, 1 ♂, 1 ♀ (DFPC); Tayandu, iv.2004, 1 ♀ (VKSC); Tayandu, viii.2004, 2 ♀♀ (EJBS); Kai Archipel., Tayandu, viii.2004 1 ♀ (WBWA); Tayandu Archipelago, Wallir I., vi.2016 (2 ♀♀ DFPC, 1 ♀ VKSC).

Redescription of lectotype. Well preserved ♂ specimen, only outer claw on left fore leg and left antennomeres VI–XI missing. Length 22.75 mm, width 7.75 mm, length/width ratio: 2.94.

Dorsal side uniformly dark violet-blue metallic, without additional reflections. Ventral side petrol green with dark golden tint. Legs bicoloured, contrasting with dorsal and ventral side respectively. Antennae dark brown, only base of antennomere I rust-coloured. Labrum, labium and maxillae pale brown. Ventral pads on all tarsomeres brown.

Head finely and sparsely punctate, punctures not foveolate, each bearing short seta, thus frons sparsely pubescent. Vertex distinctly more densely punctate but punctures still relatively fine, coarser only along eyes; punctures bearing adherent setae.

Pronotum strongly shiny, sparsely macropunctate with large impunctate areas; interspaces polished and very finely and sparsely micropunctate (at magnification 50 ×). Macropunctuation laterally gradually coarser and somewhat denser. Each macropuncture bearing moderately long white adherent seta. Medial line flat, sparsely micropunctate along entire length, hardly delimited from surrounding surface. Medial impressions indistinct. Principal impressions moderately large but shallow with moderately convex central part; only with a few macropunctures thus appearing impunctate. Lateral impressions shallow, densely macropunctate with large punctures with shallow fovea. Border between principal and lateral impression forming moderately high and relatively sharp carina. Lateral margin reaching to approx. 6/7 length of pronotum, carinate along entire length. Base of pronotum uniform without any special structure.

Elytra regularly convex; surface smooth, without elevated costae or impressions. Smooth parts sparsely micropunctate (at magnification 50 ×). Intervals irregularly punctate; two internal ones with more or less defined row of punctures becoming posteriorly multiplied and confused; next two intervals with irregular groups of 2–4 punctures; remaining ones completely irregular without clearly defined intervals. Punctures fine and small, with shallow fovea, overall sparsely arranged; interspaces 1–10 × as wide as puncture diameter. Each macropuncture with very short and hardly visible adherent white seta. Epipleura in basal 1/4 broad, moderately densely punctate and somewhat rugose, then abruptly constricted with obtusely angled inward tooth, and then gradually narrowing apically; punctures becoming finer and vanishing towards apex. Each puncture bearing long erect white seta.

Fore and mid femora in central part strongly shiny, sparsely punctate; hind femora somewhat more densely punctate. Each puncture bearing seta, setation particularly conspicuous on lower side of hind femora.

Ventral side of body (Fig. 62) overall densely and moderately coarsely punctate only central part sparsely

punctate with large shiny impunctate areas. Lateral sides of abdominal ventrite I very densely punctate with small punctures; remaining ones densely punctate with small punctures in anterolateral corners and then gradually sparser punctate inwards and apically, but with larger punctures (Fig. 63).

Aedeagus length: 7.89 mm, width: 1.44 mm, length/width ratio: 5.48. Parameres rhomboidal in outline, apices narrow and rounded with large pores and short sharply pointed scales. Penis elongate-triangular, apex slightly projecting beyond parameres, slightly constricted, its tip globose; ventral side smooth and flat without any impressions or striae (Fig. 85).

Variation. Body ♂♂ (n=3) length: 22.75–25.25 mm, width: 7.75–9.00 mm, length/width ratio: 2.81–2.93; ♀♀ (n=18) length: (25.25)27.00–33.25 mm, width: 9.00–12.00 mm, length/width ratio: 2.70–2.87(2.97). Moderately variable species. Violet-blue colouration present only in type specimen. Most of examined specimens dark brown with obscure bronze luster (Figs 64–65). Eight examined specimens metallic green with copper tint (Fig. 66), which is in two specimens dominant so they appear more copper than green. Punctuation of pronotum variable, in most specimens denser with larger punctures than in type. Medial line in several specimens more or less elevated and delimited. Principal impressions always present, in some specimens shallower due to more convex central area, usually appearing almost impunctate but in two specimens from Tayandu rather distinctively punctate. Structure of elytra quite constant, only punctuation variable as punctures either somewhat finer or coarser. Green forms with slightly coarser punctuation. Aedeagus (n=2) length: 7.89–8.56 mm, width 1.44–1.56 mm, length/width ratio: 5.48–5.49.

Differential diagnosis. For differential diagnosis see Table 4 on page 56. Brown specimens of *C. (P.) coelestina* were identified as *C. (P.) laevipennis* (currently synonym of *C. (P.) radians*), which has the principal impressions on pronotum finely and very densely punctate while *C. (P.) coelestina* has them very smooth and almost impunctate. Also it has body very smooth without any costae on elytra while *C. (P.) laevipennis* (as well as *C. (P.) radians*) have costate elytra. Finally, *C. (P.) coelestina* is usually brown and only occasionally green, while in *C. (P.) laevipennis* green specimens dominate, while brown or blue are extremely rare.

Distribution. Indonesia, Maluku Province, Kei and Tayandu islands.

Remarks. Obenberger (1922) stated in the original description that the type has dark green dorsum but this is an error (corrected by Obenberger (1928)) as the type is actually dark violet-blue, otherwise the description fits the type specimen. He did not state how many specimens he had at his disposal, we suppose he had the only one labelled as type in NMPC but we have no formal proof and therefore we designate the specimen as lectotype to prevent confusion if any other specimen is found. Also *C. (P.) coelestina* was unknown to subsequent authors and they (including Obenberger himself) identified the brown specimens as *C. (P.) elongata* or *C. (P.) laevipennis*. In the *Coleopterorum Catalogus* (Obenberger 1926) he considered *C. (P.) laevipennis* as variety of *C. (P.) radians* and reported it from Key Islands. However, he misinterpreted this taxon, as all specimens in his collection (NMPC) belong to brown form of *C. (P.) coelestina*, which is known from Key Islands, while *C. (P.) laevipennis* was described from Buru and there is no specimen from the Key Islands. The typical violet-blue colouration is extremely rare and was seen only in a few of specimens, while brown colouration is common (S. Jákl 2018, pers. com.).

Lander (2003) synonymized *C. (P.) coelestina* with *C. (P.) radians* without any discussion. *Chrysodema (P.) coelestina* is a very distinct species with smooth elytra without any costae. We did not locate the type of *C. (P.) radians* however according to the primary description it has eight to ten costae and was collected on Bismarck Islands. Therefore we restore species status of *C. (P.) coelestina*.

Akiyama & Ohmomo (2000) published photographs of *C. (P.) elongata* from Key Islands, however both specimens certainly belong to *C. (P.) coelestina*.

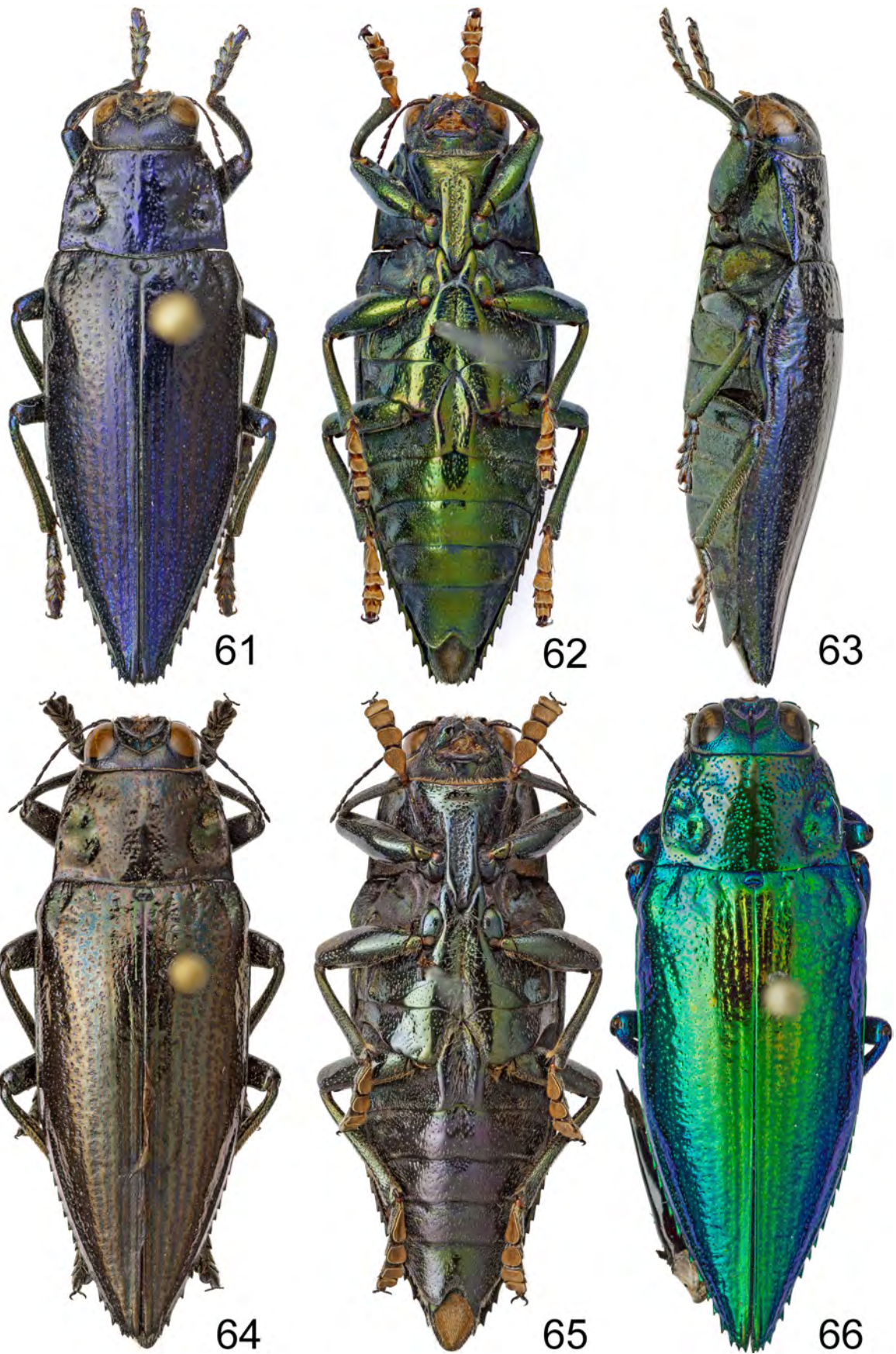
***Chrysodema (Pseudochrysodema) instabilis* Deyrolle, 1864 stat. rev.**

(Figs 67–69, 86)

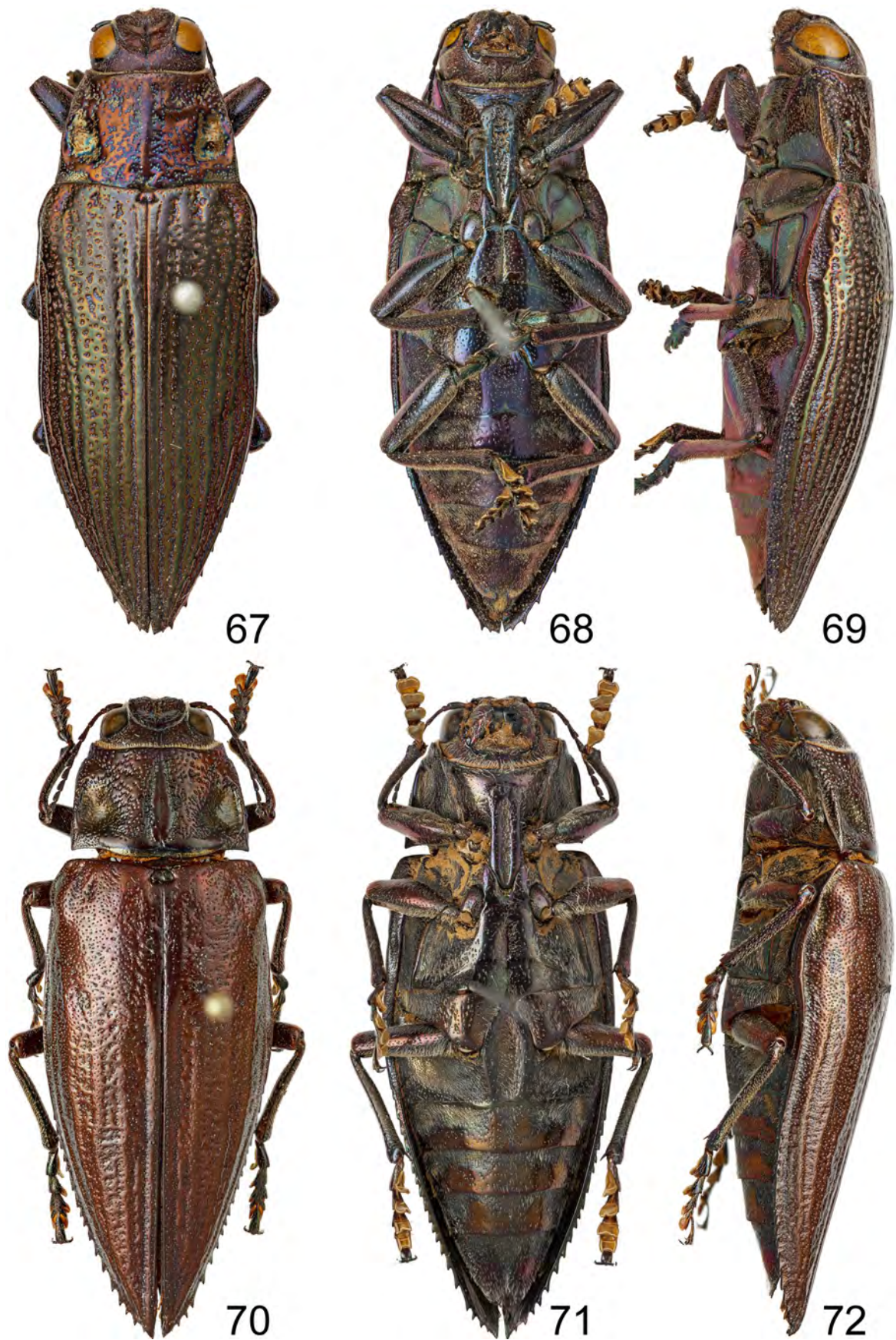
Chrysodema instabilis Deyrolle (1864): 14 (key), 23 (original description); Saunders (1871): 13 (catalogue); Kerremans (1892): 38 (catalogue); Kerremans (1903): 75 (catalogue); Akiyama & Ohmomo (2000): Pl. 44, Figs 462-1, 462-2.

Chalcophora instabilis: Gemminger & Harold (1869): 1358 (catalogue).

Chrysodema (Chrysodema) instabilis: Kerremans (1909): 519 (key), 571 (redescription); Obenberger (1926): 131 (catalogue); Lander (2003): 21 (revision, as synonym of *C. (C.) radians*), 76 (colour Fig. 22); Bellamy (2008): 532 (listed as synonym of *C. (C.) radians*), 536 (catalogue, in synonymy of *C. (C.) radians*).



FIGURES 61–66. *Chrysodema*, general aspect: 61–63—*C. (Pseudochrysodema) coelestina* Obenberger, 1922 (lectotype, ♂ 22.75 mm). 64–65—*C. (P.) coelestina* (Kai Is., ♂ 25.25 mm). 66—*C. (P.) coelestina* (Tayandu Is., ♂ 24.25 mm). 61, 64, 66—dorsal view; 62, 65—ventral view; 63—lateral view.



FIGURES 67–72. *Chrysodema*, general aspect: 67–69—*C. (Pseudochrysodema) instabilis* Deyrolle, 1864 (lectotype, ♀ 30.50 mm). 70–72—*C. (P.) jakli* sp. nov. (holotype, ♀ 32.00 mm). 67, 70—dorsal view; 68, 71—ventral view; 69, 72—lateral view.

Type locality. ‘Gilolo’ [Indonesia, North Maluku Province, Halmahera Island].

Type material examined. LECTOTYPE (present designation): ♀, ‘Gilolo [w, h] // Ex-Musæo / Mniszech [w, p]’ (MNHN). Specimen was provided with an additional red printed label: ‘LECTOTYPE / *Chrysodema / instabilis* / DEYROLLE, 1864 ♀ / David Frank & / Lukáš Sekerka des. VIII. 2018 [date handwritten]’.

Additional material examined (14 ♂♂, 18 ♀♀). **INDONESIA: NORTH MALUKU PROV.: Halmahera Island:** Gilolo, 1 ♀ (NMPC); Moluques, Halmaheira, Coll. Bruijn 1877 (2 ♂♂, 3 ♀♀ MNHN, 1 ♀ NMPC); Halmaheira, Sig. R. Oberthür (Coll. Landsberge), Eing. Nr. 4, 1956, 1 ♂, 3 ♀♀ (NMPC); Halmaheira, ex coll. F. Kessel, Mus. Zool. Polonicus Warszawa, 1946, 2 ♂♂ (NMPC); Halmaheira, 1 ♀ (NMPC); Halmahera, March 1991, 1 ♂ (VKSC); Halmahera, xii.1998, 1 ♀ (VKSC); Halmahera, iii.1999, 2 ♂♂ (VKSC); Halmaheira, ix.2002, 1 ♀ (EJBS); Halmahera, ix.2002, 1 ♀ (ATMR, coll. R. Novak; Halmaheira, v.2003 (1 ♂ EJBS, 1 ♀ DFPC); Halmahera, v.2003, 1 ♀ (ATMR, coll. R. Novak; Halmahera, Mt. Ibu, xii.2005 (1 ♂ EJBS; 1 ♂ DFPC); Halmahera, Mt. Ibu, v.2006, 1 ♂, 1 ♀ (VKSC); Halmahera, Mt. Ibu, iv.2010, 1 ♂ (DFPC). **Bacan Island:** Molucc., Batchian, Sig. R. Oberthür (Coll. Landsberge), Eing. Nr. 4, 1956, 1 ♂ (NMPC); Bacan, v.2005, 1 ♀ (NMPC). **Kasiruta Island:** Kasiruta Isl., east coast, 0–50 m alt, ix.2008, local collectors lgt., 1 ♀ (ATMR, coll. R. Novak; Kasiruta, ix.2008, 1 ♀ (DFPC).

Redescription of lectotype. Moderately preserved ♀, most of tarsi and both antennae partly broken. Length 30.50 mm, width: 11.00 mm, length/width ratio: 2.77.

Body dark bronze. Head and shiny parts of pronotum dark copper, distinctly more metallic and paler coloured than elytra. Punctures on pronotum golden with turquoise areolae; principal impressions turquoise-gold. Elytra bronze, towards lateral sides gradually more purple; punctures dark copper/purple. Ventral side mostly with obscure purple tint and laterally slightly bluish or greenish with some gold. Antennae dark brown, only base of antennomere I rust-coloured. Labrum, labium and maxillae pale brown. Ventral pads on all tarsomeres brownish-black.

Head moderately coarsely but sparsely punctate, punctures foveolate, each bearing short seta, thus frons sparsely pubescent. Vertex distinctly more densely punctate but punctures smaller and somewhat finer; punctures bearing adherent setae.

Pronotum strongly shiny, moderately densely macropunctate with large impunctate areas; interspaces extremely finely and sparsely micropunctate (hardly visible at magnification 50 ×) and micro-reticulate. Macropunctuation laterally gradually coarser and more dense. Each macropuncture bearing moderately long white adherent seta. Medial line flat, sparsely micropunctate along entire length, moderately delimited. Medial impressions impressed only anteriorly. Principal impressions moderately large but shallow with moderately convex central part; conspicuously punctate. Lateral impressions moderately deep, densely macropunctate with several large punctures with shallow fovea. Border between principal and lateral impression forming moderately high and relatively sharp carina. Lateral margin reaching to approx. 6/7 length of pronotum, carinate along entire length. Base of pronotum uniform without any special structure.

Elytra regularly convex, basal third nearly flat and apical 2/3 with structure. Intervals complete, all eight more or less defined and gradually elevated from base to apex, very finely micropunctate (at magnification 50 ×) and with several confused macropunctures. Central intervals more irregular than inner and outer ones. Rows of punctures irregular; internal two with single row of punctures in basal 1/2 and multiple rows apically; rows 3–7 formed by impressed groups of 2–6 punctures; row 8 formed by irregular double row of punctures multiplied around midlength. Area between interval 8 and outer margin with broad stripe of dense and completely irregularly arranged punctures. Interspaces within rows 1–6 × as wide as puncture diameter. Elytra overall moderately densely and coarsely punctate. Each macropuncture with short and adherent white seta, but without larger pilose areas. Epipleura in basal 1/4 broad, densely punctate and somewhat rugose, then abruptly constricted, with sharp inward tooth, and then gradually narrowing apically; punctures becoming finer and vanishing towards apex. Each puncture bearing long erect white seta.

Fore and mid femora in central part strongly shiny, sparsely punctate; hind femora somewhat more densely punctate. Each puncture bearing seta, setation particularly conspicuous on lower side of hind femora.

Ventral side of body (Fig. 68) overall densely and moderately coarsely punctate, only central part sparsely punctate with larger shiny impunctate areas. Lateral sides of abdominal ventrite I moderately densely punctate with uniformly mid-sized punctures. Remaining ventrites with area of smaller and densely arranged punctures along anterior margin, and apical part sparsely punctate with larger punctures; proportion of densely punctate area gradually decreasing apically, thus only linear on ventrite V (Fig. 69).

Variation. Body ♂♂ (n=12) length: 22.50–26.00 mm, width: 8.00–9.00 mm, length/width ratio: 2.79–2.90(3.00); ♀♀ (n=16) length: 24.00–32.50 mm, width: 8.25–12.00 mm, length/width ratio: 2.67–2.91. Moderately variable species. Colouration rather constant, only in some specimens dorsum a little more violet or bluish. Structure of pro-

notum very variable regarding punctation, some specimens with relatively small and thus relatively sparse punctation while other with large and dense punctation. Medial line from flat to slightly elevated and variously delimited. Principal impressions of quite constant shape and always with convex central part; punctation variable but always distinctive. Structure of elytra quite constant, only punctation either somewhat coarser and more impressed (in three specimens) or finer and whole structure less impressed/convex (in two specimens).

Aedeagus (n=4) length: 7.44–7.89 mm, width 1.33–1.44 mm, length/width ratio: 5.35–5.59(5.77). Parameres rhomboidal in outline, apices strongly narrowed and rounded; apices with a few large but shallow pores and short sharply pointed scales. Penis strongly elongate, subparallel-sided, apex moderately projecting beyond parameres, subtriangular with blunt tip; ventral side smooth and flat without any impressions or striae (Fig. 86).

Differential diagnosis. For differential diagnosis see Table 4 on page 56.

Distribution. Indonesia, North Maluku Province, known from Halmahera, Bacan and Kasiruta islands.

Remarks. Deyrolle (1864) did not state how many specimens he had at his disposal. We have located a single female in MNHN which we designate as lectotype to conserve status of this species. Lander (2003) did not study the type of *C. (P.) instabilis* but synonymized it with *C. (P.) radians*, however, we disagree with the synonymy and in our opinion *C. (P.) radians* is a group of species, as individual taxa show considerable morphological differences. Therefore we restore the species status of *C. (P.) instabilis*.

Chrysodema (Pseudochrysodema) jakli sp. nov.

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(Figs 70–72)

Type locality. Indonesia, East Nusa Tenggara Province, Timor Island, Kolon env.

Type material examined. HOLOTYPE: ♀, 'INDONESIA, Lesser Sundas / WEST TIMOR I. / Kolon vill. env. / IV.2016 local collector leg. [w, p]' (MHNG). PARATYPES (17 ♀♀): 3 ♀♀, same data as holotype (NMPC, DFPC, SJPC); 1 ♀, 'INDONESIA TIMOR isl. / Mutis, Gunuag / 9°34'00"S, 124°14'00"E / local collector 1998 [w, p] // *Chrysodema / radians / (Guerin, 1831) / Dét. T. LANDER 192007 [w, h/p]*' (EJBS); 2 ♀♀, 'INDONESIA, Lesser Sundas / WEST TIMOR, Mutis Mts. / MOLO MT., Soe region / 500 m alt., 10 - 20.I.2016 / local collector leg. [w, p]' (SJPC); 1 ♀, 'Indonesia, Lesser Sundas / TIMOR Isl., Oemelu vill env / 200 m alt S slopes of Mt. FATULEU / 1.2009, local collectors leg [w, p]' (DFPC); 1 ♀, 'Timor / JAN.2017 [w, p]' (SJPC); 1 ♀, 'Timor / APR.2017 [w, p]' (SJPC); 3 ♀♀, 'TIMOR IS. [w, p]' (SJPC); 1 ♀, 'RI-KI. Sundainseln / Timor Isl. Juli 2007 / coll. Jakl [w, p] // Timor / July 2007 [w, p] // *Chrysodema 1831 / radians (Guerin), / Timor Isl. / det. G. Novak 2010 [w, p]*' (ATMR, coll. R. Novak); 2 ♀♀, 'RI-KI. Sundainseln / Timor Isl. Mt. Mutis 1100m / coll. Jakl Mai 2008 [w, p] // Timor / May. 2008 [w, p] // *Chrysodema 1831 / radians (Guerin), / Timor Isl. / det. G. Novak 2010 [w, p]*' (ATMR, coll. R. Novak); 1 ♀, 'C. Rousse / Moluques [w, h]' (MHNG). **WITHOUT LOCALITY DATA:** 1 ♀ (DFPC). All specimens were provided with an additional red printed label: 'HOLOTYPE [or PARATYPE respectively] [sex] / *Chrysodema (Pseudochrysodema) / jakli* sp. nov. / David Frank & / Lukáš Sekerka det. I. 2019 [date handwritten]'.

Redescription of holotype. Well preserved ♀ with all appendages. Length 32.00 mm, width 11.25 mm, length/width ratio: 2.84.

Body generally obscure metallic bronze-brown, without additional reflections; pronotum distinctly darker coloured than elytra, principal impressions somewhat metallic iridescent. Apical half of abdominal ventrites strongly metallic bronze. Antennae dark brown, only base of antennomere I rust-coloured. Labrum, labium and maxillae pale brown. Ventral pads on all tarsomeres yellowish-brown.

Head coarsely but sparsely punctate, punctures foveolate, each bearing short seta, thus frons sparsely pubescent. Vertex sparsely and moderately punctate; punctures bearing adherent setae.

Pronotum moderately densely macropunctate; interspaces distinctly micro-reticulate and finely and sparsely micropunctate, not shiny. Macropunctuation laterally gradually coarser and denser. Each macropuncture bearing moderately long white adherent seta. Medial line well visible, moderately elevated, anterior quarter very conspicuously micropunctate, then punctures gradually weaker, and apical 1/4 without micropunctures. Medial impressions distinct, moderately deep. Principal impressions large formed by one deep concavity; its punctation much finer and shallower, sparse centrally and gradually denser marginally. Lateral impressions moderately deep, with several macropunctures. Border between principal and lateral impression forming high and relatively sharp carina. Lateral margin reaching to approx. 5/6 length of pronotum, carinate in whole length. Base of pronotum with broad, impunctate and slightly elevated transverse ridge on each side.

Elytra regularly convex; basal 1/4 smooth without costae, apical 3/4 with more or less distinct costae along suture and on intervals 2, 4, 6 and 8. Interval 6 not shortened and connected to interval 4 on apical slope. Costae low and irregular, partly connected by low transverse rugosities. Elytra completely irregularly punctate including intervals; without distinct micropunctuation (at magnification 50 ×). Punctures deeply impressed and foveolate, moderately densely arranged; interspaces 1–8 × as wide as puncture diameter. Punctures centrally (between sutural and interval 8) forming irregular groups of 2–4 punctures; each group more or less impressed. Each macropuncture bearing short adherent white seta, but impressions do not appear pilose. Epipleura in basal 1/4 broad, densely punctate, then continuously constricted and gradually narrowing apically; punctures becoming finer and vanishing towards apex. Each puncture bearing long erect white seta.

Fore and mid femora in central part strongly shiny, sparsely punctate; hind femora somewhat more densely punctate. Each puncture bearing seta, setation particularly conspicuous on lower side of hind femora.

Ventral side of body (Fig. 71) overall densely and moderately coarsely punctate, only central part sparsely punctate with large shiny impunctate areas. Lateral sides of abdominal ventrite I very densely punctate with small punctures, only narrow area along apical margin shiny with several larger and sparsely arranged punctures. In remaining abdominal ventrites basal half of lateral sides densely punctate, and apical ones sparsely punctate (Fig. 72).

Variation. Body ♀♀ (n=17): length: (29.50)31.00–36.00(38.00) mm, width: 10.25–13.50 mm, length/width ratio: (2.60)2.66–2.88. Quite constant species showing little variability in punctuation, which can be weaker and thus appear slightly sparser. In some specimens micropunctuation on pronotum very fine and practically invisible including medial line. Basal ridge of pronotum variable, in most specimens missing or more or less defined as impunctate area. Central part of each elytron at least between intervals 2 and 6 with impressed groups of punctures but in some specimens these groups small and thus not as obvious. Aedeagus unknown, all studied specimens are females.

Differential diagnosis. For differential diagnosis see Table 4.

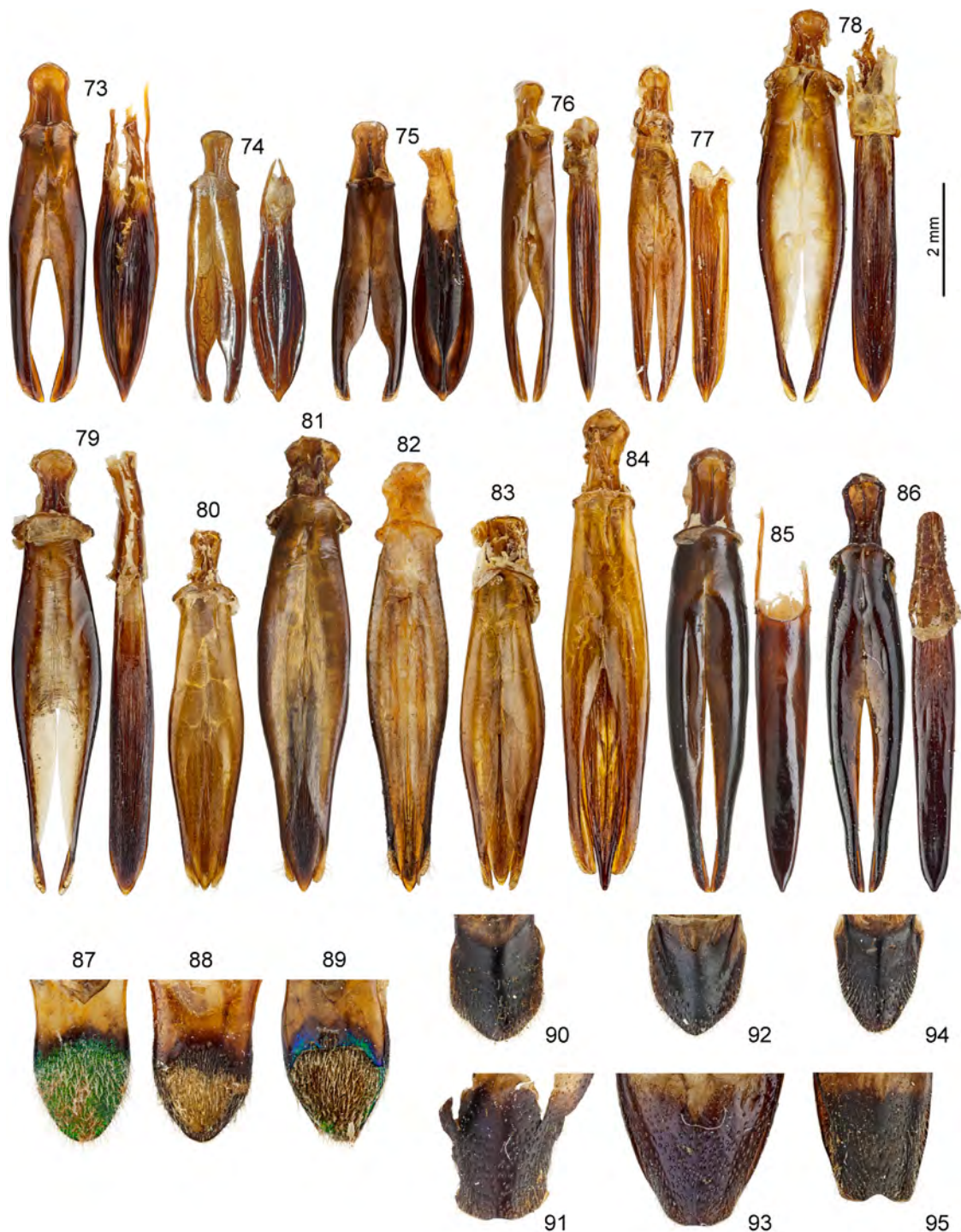
Etymology. This species is named after our friend Stanislav Jákl (Prague, Czech Republic), specialist in the Cetoniinae and donor of the holotype.

Distribution. Indonesia, East Nusa Tenggara Province, Timor Island. The species possibly also occurs in East Timor.

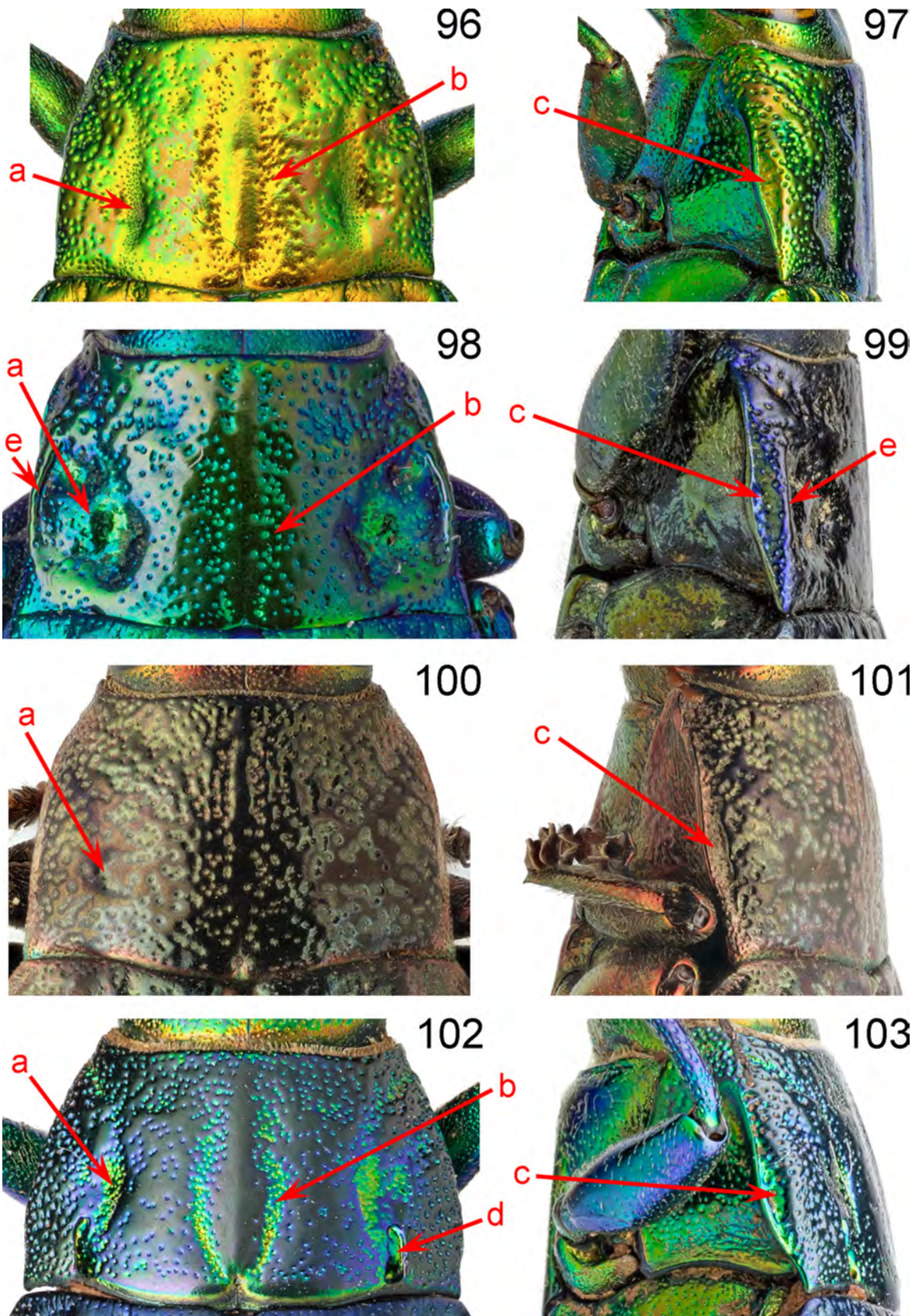
Remarks. The old specimen from ‘Moluques’ is morphologically absolutely identical to recent material from Timor, therefore we designate it as paratype and assume it was perhaps mislabelled.

TABLE 4. Diagnostic characters of the dark bronze coloured species of *Pseudochrysodema*.

	<i>C. (P.) coelestina</i> Obenberger, 1922 Figs 61–66, 85.	<i>C. (P.) instabilis</i> Deyrolle, 1864 Figs 67–69, 86.	<i>C. (P.) jakli</i> sp. nov. Figs 70–72.
body surface	polished and strongly shiny, sparsely and finely punctate	coarse and shiny, coarsely and moderately densely punctate	subrugose, matt, coarsely and densely punctate
principal impressions on pronotum	polished and shiny, almost impunctate; central part convex	shiny, coarsely and moderately densely punctate; central part convex	matt, moderately coarsely and moderately densely punctate; central part impressed
elytra	polished and shiny, without costae and with rows of small and shallow punctures	smooth and shiny with rows formed by grouped coarse punctures separated by wide impunctate intervals forming eight costae on each elytron	matt with completely irregular punctuation; punctures not forming groups but deeply impressed; intervals not distinct but apical half of elytra with subrugose surface
penis	elongate-triangular, apex slightly projecting beyond parameres, slightly constricted, its tip globose (Fig. 85)	strongly elongate, subparallel-sided, apex moderately projecting beyond parameres, subtriangular with blunt tip (Fig. 86)	n/a
distribution	Key and Tayandu Is.	Halmahera, Bacan and Kasiruta Is.	Timor Is.



FIGURES 73–95. *Chrysodema*, genitalia and terminal abdominal segments. 73—*Chrysodema (Chrysodema) sonnerati* Laporte de Castelnau & Gory, 1835 (Sri Lanka, MHNG); 74—*C. (C.) lewisii lewisii* Saunders, 1873 (holotype); 75—*C. (C.) lewisii nakatai* subsp. nov. (holotype); 76—*C. (C.) tonkinea* Kerremans, 1909 (lectotype); 77—*C. (C.) vrabeci* sp. nov. (holotype); 78—*C. (C.) aeneoviolacea* Deyrolle, 1864 (Kai Is., MHNG); 79—*C. (C.) dany* sp. nov. (holotype); 80—*C. (C.) sibuyanica* Fisher, 1924 (Sibuyan Is., NMPC); 81—*C. (C.) wallacei* Deyrolle, 1864 (Ambon Is, MNHN); 82—*C. (C.) dohrnii* Saunders, 1874 (Mindanao Is., DFPC); 83—*C. (C.) fuscitarsis* Kerremans, 1895 (Palawan Is., MNHN); 84—*C. (C.) gottwaldi* sp. nov. (holotype); 85—*C. (Pseudochrysodema) coelestina* Obenberger, 1922 (lectotype); 86—*C. (P.) instabilis* Deyrolle, 1864 (Hal-mahera Is., DFPC); 87—*C. (C.) dohrnii* (ibid., DFPC); 88—*C. (C.) fuscitarsis* (ibid., MNHN); 89—*C. (C.) gottwaldi* sp. nov. (holotype); 90, 91—*C. (C.) aurostriata* (lectotype); 92, 93—*C. (C.) tonkinea* (Hoa Binh, DFPC); 94, 95—*C. (C.) vrabeci* sp. nov. (Ban Huay Kon, MOOC). 73–79, 85–86—tegmen, parameres and penis; 80–84—aegeagus; 87–89—male ventrite VIII; 90, 92, 94—female ventrite VIII; 91, 93, 95—female tergite VIII. The scale bar does not apply to Figs 87–95.



FIGURES 96–103. *Chrysodema*, structure of pronotum. 96–97 *C. (C.) mniszehii* Deyrolle, 1864; 98–99 *C. (Pseudochryso-*
dema) coelestina Obenberger, 1922; 100–101 *C. (Thymedes) flavicornis* Saunders, 1874; 102–103 *C. (Gelaeus) walkeri bilyi*
 Frank & Sekerka, 2016; 96, 98, 100, 102—pronotum dorsal; 97, 99, 101, 103—pronotum lateral; a—principal impression, b—medial impression, c—lateral impression, d—basal impression, e—carinate margin.

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